UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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IN RE: MOODY'S CORPORATION SECURITIES LITIGATION

DOCKET NO. 07-cv-8375-GBD

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EXPERT REPORT OF

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I. Introduction

I.A. Qualifications

1. I hold the Everett D. Reese Chair in Money and Banking at the Ohio State University. I am also Director of the Dice Center for Research in Financial Economics at the Ohio State University and a Research Associate of the National Bureau of Economic Research in Cambridge, Massachusetts. Since receiving my Ph.D. in Economics from the Massachusetts Institute of Technology in 1980, I have taught at the Massachusetts Institute of Technology, the University of Rochester, the University of Chicago, and the Ohio State University. I was a Bower Fellow at the Harvard Business School from 1996 to 1997.

2. I am an expert in financial economics. I am a past president of the American Finance Association, a fellow of the American Finance Association and of the Financial Management Association, and a past president of the Western Finance Association. I received a Doctorate Honoris Causa from the University of Neuchâtel in Switzerland. I have also been recognized by a number of organizations for my contributions to financial economics by awards or by invitations to be a keynote speaker. I belong to the editorial boards of more than ten academic and practitioner publications. I was editor of the *Journal of Finance* for 12 years and co-editor of the *Journal of Financial Economics* for five years. I serve on the boards of the Community First Financial Group, Banque Bonhôte, and Weggelin Fund Management, as well as on the board of trustees of the Global Association of Risk Professionals. I have been a consultant for the IMF, the World Bank, the New York Stock Exchange, the Federal Reserve Bank of New York, corporations, and law firms. I have published more than 60 articles on issues in financial economics, authored a textbook on derivatives and risk management, and edited several books.

3. A copy of my curriculum vitae is attached as Appendix A, which includes my publications over the last ten years. A list of all cases in which I have provided testimony in the last four years is attached as Appendix B.

I.B. Assignment and Compensation

4. I have been retained by Moody's Corporation ("Moody's") to evaluate as a financial economist whether there is a reliable basis for Plaintiffs to assert that the alleged misstatements are material, caused the claimed losses to Moody's shareholders, and were unknown to or relied upon by the members of the class proposed by the Plaintiffs.

5. The analysis and opinions expressed in this report are my own. I am being compensated for my time and services at my regular hourly rate of $750. I also receive periodic compensation from Cornerstone Research, the firm that assists me on this matter and with which I have a longstanding relationship. Those payments are made entirely at Cornerstone Research's discretion, and my understanding is that they are based generally on my services for and work with Cornerstone Research, including, in particular, the level of fees that Cornerstone Research generated on matters in which they provided support to me. I understand that those payments are in no way based on the content of my opinions or the outcome of any matter. My work in this matter is ongoing.

I.C. Documents Considered

6. In undertaking this assignment, I have considered documents and data related to issues in this case. These materials are listed in Appendix C. I reserve the right to supplement my opinions in this matter in the event that additional information or arguments are provided.

I.D. Summary of Opinions and Outline of Report

7. It was well-known before and throughout the purported Class Period that ratings of structured products are heavily reliant on forecasts of future outcomes based on historical data and quantitative models. It was also known (and regulators warned) that there was model risk in ratings of structured products, i.e., the risk that model imperfections could turn out to materially affect ratings. Methodological limitations were known to have applied to Moody's evaluation of subprime-related securities.

8. It was also widely known before the putative Class Period that potential conflicts of interest were an inherent characteristic of the rating agencies' issuer-pays model. Market participants were well aware that potential inherent conflicts of interest would not be eliminated. Plaintiffs assert that distinct features of the structured finance market (and structured finance rating practices) exacerbated conflicts of interest. However, these features too were obvious and knowledge of them was widespread.

9. If Plaintiffs' allegations were correct, the alleged fraud would have been known by market participants during the Class Period. In an efficient market, the valuation impact of a fraud that is known by many market participants is rapidly incorporated in the stock price by the trading of these market participants. Therefore, in such a market, the alleged fraud cannot have a lasting inflationary effect on the stock price. If the alleged fraud was not incorporated in the stock price, on the other hand, this would indicate that the market for Moody's stock was not efficient. In any case, since the investors who knew of the alleged fraud would not have relied upon Moody's alleged misrepresentations (whether or not they were incorporated in the stock price), reliance cannot be established for a potentially large portion of the putative class proposed by the Plaintiffs.

10. Plaintiffs' general allegations regarding Moody's structured finance ratings are inconsistent with evidence in financial economics about the properties of credit ratings, about how rating methodologies evolve over time, and about the determination of ratings of structured finance products. Specifically, unexpected rating downgrades and methodology improvements do not mean that Moody's had been systematically overrating structured products due to conflicts of interest, which allegedly caused the "collapse" of the structured finance market.

11. Plaintiffs fail to present any evidence that the decline in Moody's stock price that began in the fall of 2007 was caused by disclosures correcting alleged misstatements, rather than an unexpected and unprecedented financial crisis that was outside of Moody's control. Plaintiffs have not provided scientific evidence that the alleged misstatements

inflated Moody's stock price, nor have they shown that there were disclosures that cured alleged misstatements and caused investor losses.

12. Plaintiffs fail to demonstrate that loss causation is common to all class members and that lead Plaintiffs' claims are typical of other potential class members. The proposed class includes investors who sold their shares before alleged disclosure dates.

13. This report is organized as follows. In Section II, I discuss how there was widespread knowledge of the limitations of credit ratings generally (and structured finance ratings specifically), as well as knowledge of the potential for conflicts of interest, before and throughout the purported Class Period. The section will also address how semi-private knowledge about a firm can be expected to impact the stock price of that firm, and how such knowledge is likely to be transmitted to other market participants. In Section III, I address materiality and loss causation and show that, from the perspective of a financial economist, Plaintiffs have not scientifically demonstrated either in this matter.

II. Common Knowledge Regarding Credit Ratings and Potential Conflicts of Interest

14. Plaintiffs allege that Moody's made fraudulent misrepresentations regarding its independence and its rating methodologies for structured finance products.[1] However, as I will show in this section, key features of the alleged fraud were publicly discussed before (and throughout) the purported Class Period. Additionally, as issuers and underwriters of structured finance securities – agents in Plaintiffs' alleged scheme – also traded Moody's stock and are members of the putative class, more nuanced knowledge of the alleged fraud would necessarily have diffused through various avenues to other market participants and become widespread. Because of this widespread knowledge, a financial economist would expect that any impact of the

[1] Specifically, Moody's allegedly made material misrepresentations that the company, (1) "was an 'independent' and 'objective' provider of credit ratings," (2) "had adequately managed and/or eliminated the potential conflicts of interest," (3) "issued credit ratings that reflected all known relevant information," and (4) "evaluated the quality of originator practices as part of its rating methodology." Lead Plaintiffs' Memorandum of Law in Support of Motion for Class Certification ("Memorandum for Class Certification"), filed January 22, 2010, pp. 5-9. In Re Moody's Corporation Securities Litigation, Consolidated Amended Complaint ("Complaint"), filed June 27, 2008.

alleged fraud would already have been reflected in Moody's stock price prior to Plaintiffs' alleged curative disclosures.[2]

II.A. Knowledge of rating methodologies – and rating limitations – was widespread before (and throughout) the purported Class Period

II.A.1. Limitations of credit ratings were well-known before the purported Class Period

15. Credit ratings have been scrutinized for a long time. A classic study by the National Bureau of Economic Research ("NBER") in 1958 investigated the industry to that point. The study found that "[a]s a general rule, the various rating systems were efficient in ranking issues within an industry but were less successful in judging default risks as between major industrial groups." Further, it pointed out a result that investors are familiar with, namely that "the market rating usually reflects changes in the credit standing of obligors more promptly than other ratings do."[3]

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[2] I have not been asked to opine about whether the market for Moody's stock was efficient during the proposed Class Period. However, I have reviewed Plaintiffs' filings and note that their analysis is not sufficient to show market efficiency during the Class Period. According to a commonly cited authority on market efficiency, "[a]n efficient capital market is a market that is efficient in processing information. The prices of securities observed at any time are based on 'correct' evaluation of all information available at that time. In an efficient market, prices 'fully reflect' available information." See: Eugene F. Fama (1976), "Foundations of Finance: Portfolio Decisions and Securities Prices," *Basic Books, Inc.*, p. 133.

Plaintiffs posit factors derived from court decisions, often referred to as "*Cammer* factors," as bearing upon market efficiency (Memorandum for Class Certification, pp. 18-19). However, most of these factors — trading volume, analyst coverage, number of market makers, and eligibility to file form S-3— are simply metrics that are generally satisfied by almost any security that trades on a major exchange; they are not tests of market efficiency. The fifth *Cammer* factor, in contrast, is the most critical test for market efficiency. It requires an assessment of whether new information is fully reflected in the stock price in a timely fashion. Plaintiffs' discussion of the fifth *Cammer* factor is deficient in at least two key respects. First, in discussing how Moody's stock price reacts to new information, they present only *raw* stock returns, without investigating whether such reaction was due to market effects and industry effects or was simply random noise. The second deficiency is that all of the example days Plaintiffs cite (October 24-25, 2007, April 11, 2008, and May 21, 2008) are at the close or even outside of the proposed Class Period. (Memorandum for Class Certification, p. 21.) Even if Plaintiffs had presented an appropriate scientific inquiry including abnormal returns, it seems that the question at hand is whether the market was efficient during the proposed Class Period when class members would have relied on the supposedly efficient pricing to make their investment decisions.

[3] W. Braddock Hickman (1958), "Corporate Bond Quality and Investor Experience," *Princeton University Press*, pp. 13, 18. Since publication of the NBER study, a number of studies have come to similar conclusions: A firm's stock price, debt prices, and the credit-default swap premiums (periodic payments required from the buyers of such derivative instruments in order to be protected in an event of default) on debt for that firm often change to reflect an increase in default risk before that firm's credit rating reflects such a change. (John Hull, Mirela Predescu, and Alan White (2004), "The Relationship Between Credit Default Swap Spreads, Bond Yields, and Credit Rating Announcements," *Journal of Banking and Finance*, v28, pp. 2789 – 2811; Manfred Steiner and Volker G. Heinke (2001), "Event Study Concerning International Bond Price Effects of Credit Rating Actions" *International Journal of Finance and Economics*, v6, pp. 139 – 157). Statistical models of default prediction are also well-known to reflect changes in default risk ahead of rating changes (Edward I. Altman and Herbert A. Rijken (2006), "A Point-in-Time Perspective on Through-the-Cycle Ratings," *Financial Analysts Journal*, v62(1), pp. 54-70; Stephen Kealhofer (2003), "Quantifying Credit Risk I: Default Prediction," *Financial Analysts Journal*, v59, pp. 30-44).

16. The issues raised by the NBER study have beset the rating agencies ever since. Rating agencies have always been criticized for changing ratings slowly. The fact that they maintained Enron at investment grade until shortly before bankruptcy led to investor criticism and Congressional inquiries.[4] A survey of institutional investors published in 2002 found that 71% of respondents "think the ratings on the corporate bonds that they buy lag the issuers' creditworthiness at any given moment."[5]

17. At least part of the reason for the lack of timeliness in rating changes is the fact that rating agencies aim for rating stability. They want an assessment of credit risk that is an accurate long-run assessment and one that is appropriate through the business cycle for a debt issue rather than the best possible assessment of the credit risk at a given point in time.[6] As a result of this approach, default rates can vary sharply for a given rating because of industry or business cycle effects. For instance, the default rate of B-rated bonds was over 15% in 1991, a recession year, and almost zero in 2006, a growth year.[7] The rating agencies have made every attempt to ensure that customers of ratings understand this and focus on the performance of ratings on average across the cycle rather than in a given year.[8]

18. Moreover, when there are strong unexpected adverse shocks to an industry, all firms in that industry will perform poorly, so that bonds initially rated Aa in that industry may

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[4] "Moody's Investors Service plans to respond to criticism from investors by speeding up the process the oldest credit rating company uses to review and change ratings ...follow[ing] complaints Moody's acted too slowly to downgrade Enron Corp. and other troubled companies. ...Enron had an investment-grade rating from Moody's until four days before it filed for bankruptcy." ("Moody's May Change Credit Ratings Faster, More Often," *Bloomberg*, January 18, 2002). "On March 20, 2002, the Senate Committee held a hearing – entitled 'Rating the Raters: Enron and the Credit Rating Agencies' – that focused on the role of credit rating agencies in the Enron collapse." ("Report on the Role and Function of Credit Rating Agencies in the Operation of the Securities Markets," U.S. Securities and Exchange Commission, January 2003, available at http://www.sec.gov/news/studies/credratingreport0103.pdf).

[5] H. Kent Baker and Sattar A. Mansi, (2002), "Assessing Credit Rating Agencies By Bond Issuers And Institutional Investors," *Journal of Business Finance & Accounting*, v29(9), pp. 1367-1398. See also: Edward I. Altman and Herbert A. Rijken (2004), "How Rating Agencies Achieve Rating Stability," *Journal of Banking & Finance*, v28(11), pp. 2679-2714.

[6] Frank J. Fabozzi (ed)(2001), "The Handbook of Fixed Income Securities," 6th Edition, *McGraw-Hill*, p. 457; Edward I. Altman and Herbert A. Rijken (2006), "A Point-in-Time Perspective on Through-the-Cycle Ratings," *Financial Analysts Journal*, v62(1), pp. 54-70.

[7] "Moody's Credit Policy – Maintaining Consistent Corporate Ratings Over Time," *Moody's Investors Service*, August 2008, p. 11.

[8] See, for example: "Our published performance metrics generally relate to the two attributes of our ratings that we believe are the most important for market participants: accuracy ... and stability ..." ("Report on the Code of Professional Conduct," *Moody's Investors Service*, April 2006).

end up performing much more poorly than Baa-rated bonds in an industry that was not subject to the shock. At times, downgrades are endemic within an industry.[9]

19. The problems of slow rating adjustment and downgrade clustering within industries are inherent to the way ratings are defined and to the statistical properties of default losses. The existence of these problems, which were identified by the 1958 NBER study, cannot be attributed to the alleged conflicts of interest as the study predates the rating agencies' adoption of the issuer-pays business model in the 1970s.[10]

20. It is also well-known that ratings only measure creditworthiness, while bond prices depend on many other variables.[11] First, investors demand compensation to bear the risk of default in the form of an interest rate premium (or "risk premium"), and this premium can change sharply over time.[12] In financial economics, this compensation for credit risk depends on how a bond price co-moves with the prices of other bonds and other financial assets.[13] Moody's ratings are not meant to provide information about this co-movement. Second, investors want to be compensated for risk associated with liquidity.[14] Investors want to receive a higher yield for bonds that are (at risk of) becoming more difficult to trade. Liquidity risk is not addressed by credit ratings.[15]

II.A.2. Inherent limitations of structured finance rating methodologies were known before (and throughout) the purported Class Period

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[9] For example, this happened in the power, telephone, and technology industries following the collapse of Enron. ("Corporate Credit-Rating Cuts Reach Record This Year (Update 2)," *Bloomberg*, December 26, 2002).

[10] "Moody's History", available at http://www moodys.com/moodys/cust/AboutMoodys/AboutMoodys.aspx?topic=history.

[11] "Limitation to Use of Rating: ...As ratings are designed exclusively for the purpose of grading obligations according to their credit quality, they should not be used alone as a basis for investment operations. For example, they have no value in forecasting the direction of future trends of market price," available at: http://v3 moodys.com/ratings-process/Ratings-Definitions/002002.

[12] Eugene Fama and Kenneth French (1989), "Business Conditions and Expected Returns on Stocks and Bonds," *Journal of Financial Economics*, v25, p. 28.

[13] A well-known model used by financial economists is the capital asset pricing model ("CAPM"). In this model, the risk premium on a security depends on how that security co-moves with the market (proxied by a broad equity index, for instance). Richard A. Brealey and Stewart C. Myers (2003), "Principles of Corporate Finance," 7th Edition, *McGraw-Hill*, pp.194-203.

[14] See, for instance: Viral V. Acharya and Lasse H. Pedersen (2005), "Asset Pricing with Liquidity Risk," *Journal of Financial Economics*, v77, pp. 375-410.

[15] See, for example: "CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY," available at: http://www moodys.com/moodys/cust/AboutMoodys/AboutMoodys.aspx?topic=copyright.

21. Until the 1980s, most of the securities issued by companies and evaluated by rating agencies were corporate bonds. Since the early 1980s, a new segment of the bond market grew tremendously, reaching a historical peak in 2007. This segment is the market for structured finance. Though there are many definitions of structured finance, the one that corresponds most closely to what rating agencies call structured finance is that "it takes pools of undifferentiated risks – such as those contained in a portfolio of residential mortgages or credit card debts – and parcels them out into debt instruments with different risk profiles."[16] A more formal definition is given by the Bank for International Settlements ("BIS"), in a report published in 2005 before the start of the Class Period:

> Structured finance instruments can be defined through three key characteristics: (1) *pooling* of assets (either cash-based or synthetically created); (2) *tranching* of liabilities that are backed by the asset pool (this property differentiates structured finance from traditional 'pass-through' securitisations); (3) *de-linking* of the credit risk of the collateral asset pool from the credit risk of the originator, usually through use of a finite-lived, standalone special purpose vehicle (SPV).[17]

22. Structured finance functions in a fundamentally different way from corporate finance. With structured finance, an entity is created to issue securities. This entity houses assets and issues multiple classes of securities. The assets can be loans, bonds, physical assets such as houses or airplanes, contractual claims, and so on. Issuers construct the classes of securities with the purpose of obtaining specific ratings at issue. The securities issued in the largest amount are designed to garner Aaa ratings. The whole construct is engineered with the specific purpose of achieving security issuances with a favorable rating mix.[18]

23. Exhibit 1 shows the dramatic growth of the securitization market over time, as well as the expansion of the structured finance market compared to the corporate debt and

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[16] "The Fundamentals Of Structured Finance Ratings," *Standard & Poor's*, August 23, 2007, p. 2.

[17] "The Role of Ratings in Structured Finance: Issues and Implications," *Bank for International Settlements, Committee on the Global Financial System*, January 2005, p. 5. The committee under whose umbrella this report was published is currently chaired by Donald L. Kohn, the Vice-Chairman of the Board of Governors of the Federal Reserve System and is charged with monitoring "developments in global financial markets for central bank Governors." See: http://www.bis.org/cgfs/index.htm.

[18] *Ibid.*, p. 1.

municipal bond issuance markets. Notably, the subprime mortgage securitization market grew dramatically as well. In 2000, only $81 billion (approximately 3%) of the $3 trillion of outstanding mortgage-backed securities ("MBS") were backed by subprime mortgages. At the end of 2006, the amount of subprime mortgage-backed securities outstanding was $732 billion, accounting for 13% of the total MBS outstanding (See Exhibit 2 for residential mortgage-backed security ("RMBS") issuance after 2002).[19]

24. As discussed previously, the rating for a corporate bond measures only the creditworthiness of the bond and contains no information about other critical determinants of the risk of a bond. This is a well-known general property of credit ratings, and also applies to structured finance.[20] In times of market turmoil, the relative importance of these other risk factors increases, and thus market prices can change dramatically even with no change in the underlying creditworthiness of the instrument.[21]

25. Rating structured finance deals is technically challenging and requires making a large number of assumptions. Consider a securitization of subprime loans. The starting point is to forecast the statistical distribution of losses due to default on these mortgages over time. The estimated distribution can then be used to simulate possible outcomes for individual tranches of the securitization. Suppose for simplicity that in order to receive the Aaa rating, a tranche should have an expected loss of 0.006% or lower. Given the statistical distribution of losses to the assets in the trust, it is possible to find out the distribution of the losses that would accrue to a hypothetical Aaa-rated tranche (which

[19] Alt-A mortgages have creditworthiness between prime and subprime mortgages. There were $44 billion of Alt-A MBS outstanding in 2000. By the end of 2006, there were $730 billion Alt-A MBS outstanding. (Gary Gorton (2008), "The Panic of 2007," NBER Working Paper, pp. 8-9).

[20] "Ratings Definitions," available at: http://v3.moodys.com/ratings-process/Structured-Finance-Long-Term-Ratings/002002001007.

[21] See, for example: Ingo Fender and Martin Scheicher (2009), "The Pricing of Subprime Mortgage Risk in Good Times and Bad: Evidence from the ABX.HE Indices," *Bank for International Settlements*, BIS Working Paper No. 279, p. 20: "While fundamental factors, such as indicators of housing market activity, have continued to exert an important influence on the subordinated ABX indices, the AA and AAA indices have tended to react more to the general deterioration of the financial market environment, such as declining risk appetite and market liquidity. These results underline the well-established view that risk premia are important components of observed prices for default-risky products, and that the relative importance of non-default risk factors will tend to increase in periods of strong repricing of credit risk." See also: Francis A. Longstaff, Sanjay Mithal, and Eric Neis (2005), "Corporate Yield Spreads: Default Risk or Liquidity? New Evidence from the Credit Default Swap Market," *The Journal of Finance*, v60(5), pp. 2213-2253.

depends on the size of the cushion of lower-rated tranches that will absorb losses first, among other factors). Suppose that an issuer approaches the rating agency to rate the deal. If the rating agency were to find that the expected loss of the tranche the issuer envisions having an Aaa-rating is 1%, which is greater than 0.006%, it would refuse to rate that tranche Aaa.

26. Since well before the Class Period, Moody's and other major credit ratings agencies ("CRAs") have been transparent about the methodologies they employ to rate various structured finance products, such as collateralized debt obligations ("CDOs") and RMBS. They made their quantitative models available to market participants.[22] They issued frequent reports on the technical features of their approach. This allowed academics and regulators alike to study, compare, and comment on their methods.[23] Moody's also published data that made it possible to assess the performance of the structured finance securities it rated. Users of ratings could therefore dissect these models and make changes to them if they felt that such changes were appropriate. In addition, transparency of rating methodologies comes from "the steady turnover of rating agency analytic staff – who take jobs with investors, issuers, and investment banks – spreads hands-on knowledge of rating methodologies beyond the confines of the rating agencies."[24] Thus in my hypothetical example in the previous paragraph, a possibility is that before the issuer approaches the rating agency to rate the deal, the issuer itself anticipates and applies the rating agencies' likely models, assumptions, and requirements in order to present tranches that it expects will be rated at certain levels.

27. In a broad study of ratings in the structured finance marketplace, BIS noted: "[B]y making their rating models freely available to the market, the rating agencies have

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[22] For example, S&P's LEVELS, Moody's Mortgage Metrics, S&P's CDO Evaluator, and Moody's CDOROM are described on the rating agencies' websites and can be licensed from the rating agencies.

[23] See, for example: the description and comparison of then-current ratings methodologies in Ingo Fender and John Kiff (2004), "CDO Rating Methodology: Some Thoughts on Model Risk and its Implications," *Bank for International Settlements*, BIS Working Papers, No. 163.

[24] Mark Adelson, "The Role of the Credit Rating Agencies in the Structured Finance Market," Testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, September 27, 2007. "Mr. Adelson joins S&P [as Chief Credit Officer in May 2008] from Adelson & Jacob Consulting, a firm that provides strategic consultation on securitization, real estate and investments. Prior to that, he was managing director and head of Structured Finance Research at Nomura Securities International. Previously, Mr. Adelson was managing director, Residential Mortgage Finance, for Moody's Investors Service." (http://www2.standardandpoors.com/spf/pdf/media/leadership_actions_griep__050808.pdf).

increased transparency and may have helped to strengthen the objectivity of the rating process. Inviting practitioner and academic comments on their methodologies also helps the agencies to keep their approaches up to the mark."[25] Widespread discussions of rating methodologies and rating practices apparently also occurred at securitization industry conferences that were frequently attended by academics, asset managers, investment bankers, and other industry professionals.[26]

28. The approach to rating I have described above relies crucially on predictions about possible outcomes for losses and the probability attached to such outcomes. To make these predictions for subprime securities, the rating agencies openly used historical data on subprime losses as well as macroeconomic scenarios concerning housing and interest rates.[27] However, subprime mortgages, especially with the layering of multiple risk characteristics that came to dominate 2006 and 2007 vintage subprime loans, had not been available on a large scale for very long, and had not gone through a severe recession yet.[28] Consequently, the databases used by the agencies included a relatively small number of years, and during that limited timeframe the subprime market as well as the economy was constantly changing. When experience with a financial instrument is limited, forecasts using past experience are not as precise as they would be with more data. Therefore, rating agencies modify their methodologies and assumptions based on new data and experiences. Such methodology refinements imply nothing improper or

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[25] "The Role of Ratings in Structured Finance: Issues and Implications," *Bank for International Settlements, Committee on the Global Financial System*, January 2005, p. 27.

[26] For example, the speaker list for Standard & Poor's October 20, 2006 "Credit Risk Summit" on correlation modeling and CDOs consisted of academics, asset managers, and employees from major investment banks such as JP Morgan, Merrill Lynch, and Barclays Capital (http://www2.standardandpoors.com/spf/pdf/events/CreditRisk2006.pdf). Similarly, the American Securitization Forum's 2006 Annual Meeting had a panel discussion of "Rating Agency Standards and Practices for Evaluation CDOs" and employees from JP Morgan Chase, Lehman Brothers, Bear Stearns, Morgan Stanley, Citi, and many buy-side organizations attended the conference (http://www.americansecuritization.com/story.aspx?id=416).

[27] See, for example: "Moody's Mortgage Metrics: A Model Analysis of Residential Mortgage Pools," *Moody's Investors Service*, April 1, 2003. See also: "U.S. Subprime Mortgage Securitization Cashflow Analytics," *Moody's Investors Service*, March 17, 2004.

[28] See, for example: Laurie Goodman, Shumin Li, Douglas Lucas, Thomas Zimmerman, and Frank Fabozzi (2008), "Subprime Mortgage Credit Derivatives," *John Wiley & Sons, Inc.*, pp. 295-308. Allan N. Krinsman (2007), "Subprime Mortgage Meltdown: How Did It Happen and How Will It End?" *The Journal of Structured Finance*, pp. 13-19. Also see: "Most of the data relates to basic, mainstream mortgage loans, rather than loans with multiple exotic features and risk factors. Data covering times of stress is scarce. So is data relating to loans with multiple risk factors, such as loans with both high loan-to-value ratios and no documentation of borrower income." (Mark Adelson, "The Role of the Credit Rating Agencies in the Structured Finance Market," Testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, September 27, 2007).

fraudulent.[29] And as I will discuss below, all of these rating agency practices and data limitations were well-known.

29. For example, loan performance data indicate that changes in house price appreciation (HPA) is one of the most important factors explaining the defaults of subprime mortgages.[30] Consequently, ratings of subprime securitization tranches were dependent on HPA projections. *Ex post*, house price appreciation forecasts from experts in 2006 and 2007 turned out to be wrong; Moody's was not alone in being too optimistic about HPA.[31] However, anybody who plans an outing based on a weather forecast knows that the forecast could be wrong, and nobody would assume an incorrect forecast to be proof of a conflict of interest between the meteorologist and the tourism industry. Similarly, forecasting mistakes by Moody's do not mean that its ratings were biased because of conflicts of interest.

30. The concept of model risk is a well-known source of risk to which risk managers, regulators, and other market participants already paid great attention before the Class

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[29] Moody's had been updating their methodologies for rating RMBSs, CDOs, and other instruments well before (and throughout) the purported Class Period. For example, "An Update to Moody's Analysis of Payment Shock Risk in Sub-Prime Hybrid ARM Products," *Moody's Investors Service*, May 16, 2005. "Update to Subprime Residential Mortgage Securitization Assumptions," *Moody's Investors Service*, December 2, 2005. "Moody's Approach to Coding Subprime Residential Mortgage Documentation Programs: Updated Methodology," *Moody's Investors Service*, November 28, 2006. "Moody's Modeling Approach to Rating Structured Finance Cash Flow CDO Transactions," *Moody's Investors Service*, September 26, 2005.

[30] Yuliya Demyanyk and Otto Van Hemert (2009), "Understanding the Subprime Mortgage Crisis," *Review of Financial Studies*, forthcoming; Geetesh Bhardwaj and Rajdeep Sengupta (2009), "Did Prepayments Sustain the Subprime Market," Federal Reserve Bank of St. Louis Working Paper; Kristopher Gerardi, Andreas Lehnert, Shane Sherlund, and Paul Willen (2008), "Making Sense of the Subprime Crisis," *Brookings Papers on Economics Activity*, Fall, pp. 69-145.

[31] For example, experts from the Mortgage Bankers Association and the National Association of Realtors gave forecasts in 2006 that, after the fact, turned out to be too optimistic. ("Mortgage Finance Market Commentary #8: Housing Activity Should Decline Modestly This Year," Mortgage Bankers Association, January 2, 2006, available at www.mortgagebankers.org; "Home Sales Settling Down and Appreciation Slowing," National Association of Realtors, June 6, 2006). See, also: "Economists Predict Soft Landing for Housing," National Association of Home Builders, April 28, 2006, available at www.NAHB.org; "Housing: Is the Worst Over?" *Business Week*, April 18, 2007; "A year ago at this time many top economists were looking for that recovery to begin in 2007. ...Many other economists freely admit their year-ago forecasts missed the mark." ("How They Got Housing Wrong," *CNN*, December 28, 2007, available at www.CNNMoney.com). *The Wall Street Journal* periodically surveys analysts and economists on their outlook for key economic indicators, including HPA. In November 2006, 65% of respondents to the survey indicated they believed "the worst of the housing bust is behind us", and by March 2007 the number of economists who believed the worst of the housing bust was behind us had increased to 80%. (available at http://online.wsj.com/public/resources/documents/info-flash08.html?project=EFORECAST07). That, *ex post*, some experts were too optimistic about HPA in 2006 and 2007 is not surprising given the historical evidence at the time. As noted by current Fed chairman Ben Bernanke in 2005 (at that time he was an adviser to President Bush), "[w]e've never had a decline in housing prices on a nationwide basis." ("Drop Foreseen in Median Price of Homes in U.S.," *The New York Times*, August 26, 2007).

Moody's discussed the importance of HPA projections, and noted how they updated HPA assumptions in: "Sub-Prime Mortgages: An Integrated Look into Credit Issues Today and What to Expect," *Moody's Investors Service*, March 9, 2007.

Period.[32] For instance, capital requirements for banks under the Basel II standards that are in effect in many countries, and to some extent for large banks in the U.S., explicitly require banks to set aside reserves for model risk.[33] Research published in 2004 discussed in detail how "model risk" could result in "meaningful differences" in CDO tranche rating outcomes from different agencies, and sounded caution "against exclusive reliance on CDO ratings in taking investment decisions."[34] Similarly, an independent industry consultant warned in 2005 that "for structured financial products, investors are inadequately informed by the rating of any of the three major rating agencies and have to do their own independent evaluations."[35]

31. In May 2005, former Fed Chairman Alan Greenspan noted that "the credit risk profile of CDO tranches poses challenges to even the most-sophisticated market participants" and warned investors "not to rely solely on rating-agency assessments of credit risk, in part because a CDO rating cannot possibly reflect all the dimensions of the risk of these complex products."[36] In addition, in a report published in 2005, a working group of representatives from the central banks of developed countries reached the following conclusion about model risk in the ratings of structured finance products:

> [M]odel-based risk assessments can be a long way from 'true' values and, to the extent that investors rely on ratings for their structured finance investments, the model risk linked to the

[32] One definition of model risk is: "the risk that theoretical models used in pricing, trading, hedging, and estimating risk will turn out to produce misleading results". (Steven Allen (2003), "Financial Risk Management, A Practitioner's Guide to Managing Market and Credit Risk," *John Wiley & Sons, Inc.*, p. 97). According to the Financial Services Authority, the regulator of the financial services industry in the UK, model risk refers to the risk of suffering "[l]osses due to imperfect model or data." (Philippe Jorion and GARP (Global Association of Risk Professionals) (2007),"Financial Risk Manager Handbook," 4th Edition, *John Wiley & Sons, Inc.*, p. 553). Model risk may include the risk of: using a model of reality that is ultimately incorrect, using a correct model inappropriately, approximating the solution of a model poorly, unstable data (e.g. past data trends not being indicative of future trends), and other potential problems arising from financial modeling. (See: "Model Risk," *Goldman Sachs*, Quantitative Strategies and Research Notes, April 1996, pp. 6-8).

[33] See ¶ 699 of: "International Convergence of Capital Measurement and Capital Standards, A Revised Framework," *Bank for International Settlements, Basel Committee on Banking Supervision*, June 2004.

[34] Ingo Fender and John Kiff (2004), "CDO Rating Methodology: Some Thoughts on Model Risk and its Implications," BIS Working Papers, No. 163.

[35] Janet Tavakoli (2005), "Structured Finance: Rating the Rating Agencies," *GARP Risk Review*, Issue 22, January/February.

[36] Remarks by Chairman Alan Greenspan, "Risk Transfer and Financial Stability," To the Federal Reserve Bank of Chicago's Forty-first Annual Conference on Bank Structure, May 5, 2005, available at: http://www.federalreserve.gov/Boarddocs/Speeches/2005/20050505/default.htm.

agencies' rating methodologies will be among the principal risks these investors are exposed to.[37]

32. The fact that there was not unanimous agreement on the assumptions, models, and projections used by rating agencies was well-known before the subprime crisis. For example, a study published by the Brookings Institution reports an instance in 2005 when analysts from a major bank disagreed with S&P's loss projections on certain RMBS products: "For 2005 subprime loans, S&P predicts lifetime cumulative losses of 5.8%, which is less than half our number...We believe that the S&P numbers greatly understate the risk of HPA declines."[38] In a presentation at the Structured Credit Instruments Conference in November 2005, an analyst stated when discussing CDO modeling, "[m]y personal opinion is that correlation based on geographical location is not very accurate.... [D]espite my own misgivings as well as those of many other market participants, the rating agencies...continue to believe in the validity of geography-driven correlations."[39]

33. Ratings' heavy reliance on historical data and quantitative models is particularly important when considering allegations about Moody's loan originator evaluations. Plaintiffs allege without much specificity that Moody's misrepresented how it "evaluated the quality of originator practices," but it is unclear in what way Plaintiffs find Moody's statements about its methodology misleading.[40]

34. At all times, it was known that Moody's largely relied on hard, or verifiable, data and records (e.g., FICO scores, loan-to-value ratios, historical performance data) when

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[37] "The Role of Ratings in Structured Finance: Issues and Implications," *Bank for International Settlements, Committee on the Global Financial System*, January 2005, p. 24.

[38] Kristopher Gerardi, Andreas Lehnert, Shane Sherlund, and Paul Willen (2008), "Making Sense of the Subprime Crisis," *Brookings Papers on Economics Activity*, Fall, p. 138. Also see: "Market participants have been able to 'disagree' with rating models by using alternative assumptions or by ascribing less confidence to the models' estimates for stressful conditions. Many have done so and have tailored their investment strategies accordingly." (Mark Adelson, "The Role of the Credit Rating Agencies in the Structured Finance Market," Testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, September 27, 2007.)

[39] Arturo Cifuentes (2006), "CDOs and Correlation: A Few Modeling Misconceptions," *CFA Institute Conference Proceedings Quarterly*, June, pp.54.

[40] Plaintiffs suggest that Moody's failed to adhere to its own stated methodology for evaluating loan originator quality in a 2003 research report titled "Moody's Mortgage Metrics: A Model Analysis of Residential Mortgage Pools," *Moody's Investors Service*, April 1, 2003. Plaintiffs chiefly point to a July 12, 2007 ratings action in which Moody's downgraded multiple 2006 vintage RMBS and CDO deals, 63% of which were attributed to four originators. Moody's then also modified its rating methodology and noted the loan originators that had exhibited poor performance. See: Memorandum for Class Certification, p. 6; Complaint ¶111-126.

assigning ratings.[41] The increasing riskiness of certain originators' 2006 vintage loans lies largely in changes in the risk attributes of borrowers that generally could not be assessed using verifiable hard information that was available to rating agencies on mortgagors, loans, or originators.[42]

35. Moody's made it clear that it was not responsible for conducting the type of due diligence needed to immediately discern such changes in loan risk attributes. As stated in the Code of Conduct: "Moody's has no obligation to perform, and does not perform, due diligence with respect to the accuracy of information it receives or obtains in connection with the rating process."[43]

36. Moreover, greater insight into loan originator quality required an analysis of loan performance data after a sufficient period of seasoning, because "it was not clear if [early delinquency patterns of the 2006 vintage] just reflected the impact of lower home price appreciation on investors using subprime loans to flip properties, or foreshadowed more serious problems."[44] Moody's stated publicly in early 2007 that it was aware of the decline in recent vintage performance, as well as originator-specific problems, but wanted to observe additional data as the loans continued to evolve so it could assess the sources and severity of the problem and avoid making "drastic changes in ratings when

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[41] See, for example: the description of Moody's Mortgage Metrics, a predominantly quantitative model used for analyzing RMBS: "Loan-to-Value Ratio Remains Key: Borrower equity is an important buffer against default risk and a cushion against loss where a default occurs. ...Borrower character and capacity to pay play a central role in our rating approach. ...While there are many ways to assess a borrower's credit history, under-writers increasingly rely on automated approaches, usually a credit scoring system. ...The credit scoring system developed by Fair, Isaacs & Co. (FICO) produces statistically significant predictions of default frequency on Jumbo A loans. Reliance on reported information from previous creditors necessarily introduces a source of error; and a borrower's reported FICO scores can vary widely across the 3 major reporting agencies. Yet, although imperfect, Moody's Mortgage Metrics utilizes FICO scores at loan origination to maximize its predictive power for pool losses." ("Moody's Mortgage Metrics: A Model Analysis of Residential Mortgage Pools," *Moody's Investors Service*, April 1, 2003, pp. 6-7). For the use of Mortgage Metrics for subprime securities see: "Moody's Approach to Coding Subprime Residential Mortgage Documentation Programs: Updated Methodology," *Moody's Investors Service*, November 28, 2006, p.1.

[42] Laurie Goodman, Shumin Li, Douglas Lucas, Thomas Zimmerman, and Frank Fabozzi (2008), "Subprime Mortgage Credit Derivatives," *John Wiley & Sons, Inc.*, pp. 70-71, 303-308. As the securitization market evolved, lenders paid less attention to "soft" information about the borrowers or properties that were difficult to verify, and mortgages were increasingly underwritten for borrowers for whom the hard information offered a biased assessment of their capacity to pay. (Uday Rajan, Amit Seru, and Vikrant Vig (2008), "The Failure of Models That Predict Failure: Distance, Incentives and Defaults," University of Michigan Working Paper, pp. 3, 5).

[43] "Code of Professional Conduct," *Moody's Investors Service*, June 2005, p. 4.

[44] See: Adam Ashcraft and Til Schuermann (2008), "Understanding the Securitization of Subprime Mortgage Credit," Federal Reserve Bank of New York Staff Report, March, p. 59. See also: "Rating agencies also assess the underwriting standards by looking at historical default rates of an originator and monitor the default rates over time to determine if there has been deterioration or an improvement in underwriting standards." (Frank Fabozzi, Henry Davis, and Moorad Choudhry (2006), "Introduction to Structured Finance," *John Wiley & Sons, Inc.*, p. 80).

it's too early."[45] For example, Moody's flagged the poor performance of recent vintage loans in a January 22, 2007 review and noted that "Moody's loss expectations on pools securitized since 2004 through today have been increasing in response to the weakening of the housing market and collateral quality. ...There is ... significant dispersion in performance of deals issued in 2006 by the different originators."[46]

37. While Plaintiffs criticize Moody's for updating its methodology related to loan originator standards, it is important to note that other credit rating agencies and other market participants also had to adapt their methodologies to put more emphasis on loan originator identity and quality after the fallout of the crisis.[47]

II.B. Knowledge of potential conflicts of interest was widespread before (and throughout) the purported Class Period

II.B.1. The potential "issuer-pays" conflict was widely discussed at all times

38. The potential for conflicts of interest to arise from the issuer-pays model was already well-known before the proposed Class Period, and was extensively discussed after the Enron and other corporate scandals. For example, a Geneva Report on the World Economy published in 2004 noted "[a]n obvious risk is that the 'issuer fee' model

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[45] "Sub-Prime Mortgages: An Integrated Look into Credit Issues Today and What to Expect," *Moody's Investors Service*, March 9, 2007. Also, in a January 18, 2007 report, Moody's states "Mortgages backing securities issued in late 2005 and early 2006 have had sharply higher rates of foreclosure, real estate owned (REO) and loss than previously issued securities at similar, early points in their lives. These 'early default' measures have been primarily visible in the subprime universe, but are not limited to that sector. Moody's is currently assessing whether this represents an overall worsening of collateral credit quality or merely a shifting forward of eventual defaults which may not significantly impact a pool's overall expected loss.... As we have frequently commented on in recent years, originators of subprime loans have loosened underwriting guidelines and materially increased the layering of risk.... Issuers are examining whether various degrees of underwriting or broker misrepresentation might be causing increases in early defaults; however, there is currently limited data to confirm this as a widespread phenomenon.... Finally, preliminary data [...] may indicate that declines in home price appreciation nationwide also have played a role in these early defaults." ("Early Defaults Rise in Mortgage Securitizations," *Moody's Investors Service*, January 18, 2007, pp. 1, 5).

[46] "2006 Review and 2007 Outlook: Home Equity ABS; 2006 Was Tough – Will 2007 Be Even More Challenging?," *Moody's Investors Service*, January 22, 2007.

In a March 9, 2007 teleconference, Moody's notes that Fremont in particular has done very poorly. In the Q&A, Moody's notes that it has observed early payment default data "originator by originator, and the number is changing." ("Sub-Prime Mortgages: An Integrated Look into Credit Issues Today and What to Expect," *Moody's Investors Service*, March 9, 2007).

[47] For S&P's and Fitch's methodology revisions to assess loan originator qualities, see, for example: "Update On U.S. RMBS: Performance, Expectations, Criteria," *Fitch Ratings*, February 2008, p. 36; "Standard & Poor's Enhanced Mortgage Originator And Underwriting Review Criteria for RMBS," *Standard & Poor's*, November 25, 2008, p. 2. See also: "I believe that market participants can be more effective in estimating the riskiness of loans by placing greater emphasis on how the loans were originated and who originated them. However, here too, it remains to be seen whether the market will embrace such an approach." (Mark Adelson, "Subprime Mortgages - A Realistic Outlook," *Asset Securitization Report*, August 20, 2007, p.3).

could result in rating agencies implicitly or explicitly offering more favourable ratings in exchange for business."[48] An *Economist* article in 2005 stated "[t]he big agencies' business model has a built-in conflict of interest. Ratings are paid for by the issuers of bonds and other forms of tradable debt, not by investors who use them. Can they be completely independent of the firms who pay the bills?"[49] A *Wall Street Journal* article similarly commented that "[l]awmakers have called on the SEC to regulate ratings firms more closely and to monitor conflicts of interest in a system where issuers pay the companies that perform their ratings. The industry has come under fire for failing to spot red flags that exploded in scandal."[50]

39. Contrary to Plaintiffs' allegations,[51] market participants were not misled by Moody's Code of Conduct released in June 2005 (and other alleged misrepresentations made during the purported Class Period) to think that potential inherent conflicts of interest would be completely eliminated. Moody's stated in its Code of Conduct that: "Moody's and its Analysts will use care and professional judgment to maintain both the substance and appearance of independence and objectivity. ... [Moody's will adopt procedures to] eliminate, or manage and disclose, as appropriate, actual or potential conflicts of interest that may influence the opinions and analyses Moody's makes or the judgment and analyses of Moody's Employees who have an influence on Credit Rating decision."[52] Moody's cautionary language about using "care" and "managing" potential conflicts was not taken as a suggestion that potential for conflicts from the issuer-pays model would be completely eliminated. This is evidenced by regulators' statements, financial media articles, and market participants' commentaries during the purported Class Period that continued to flag the issue.[53]

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[48] Andrew Crockett, Trevor Harris, Frederic Mishkin, and Eugene White (2003), "Conflicts of Interest in the Financial Service Industry: What Should We Do About Them?," *Geneva Reports on the World Economy 5*, p. 48.

[49] "Three is no crowd - Credit-rating agencies," *The Economist*, March 26, 2005.

[50] "Moving the Market: SEC Says Voluntary Policing By Ratings Firms Lacks Bite," *The Wall Street Journal*, March 10, 2005.

[51] Complaint, ¶69; Memorandum for Class Certification, pp. 6-7.

[52] "Code of Professional Conduct," *Moody's Investors Service*, June 2005.

[53] In addition to coverage in the mainstream financial media, this issue was discussed by bloggers. See, for example: "The ratings of our competitors were biased by serious conflicts of interest. Ours were not. You see, A.M. Best, Moody's, S&P, and Duff & Phelps were paid substantial sums BY the insurance companies to provide ratings FOR the insurance companies, a blatant and direct conflict of interest." (Martin D. Weiss, "The Greatest Scam of All," Prudent Investor Newsletters , October 19, 2004). "This conflicted business model means that the paying customers for these agencies are the corporations they analyze, not

40. For example, Senator Richard Shelby stated in February 2006 that "he is concerned about the industry's basic business model...that some critics say poses an inherent conflict of interest."[54] The conflicts of interest issue was then extensively discussed during the Senate hearing entitled "Assessing the Current Oversight and Operation of Credit Rating Agencies" on March 7, 2006.[55] Again, remarking in a September 2006 report accompanying legislation aimed at rating agency practices, Senator Shelby noted that "NRSROs have been criticized by a broad array of interested parties with respect to conflicts of interest..."[56] Similarly, Pennsylvania Congressman Michael Fitzpatrick remarked in July 2006 that "[t]he lack of competition in the credit rating industry has lowered the quality of ratings, inflated prices, stifled innovation and allowed abusive industry practices and conflicts of interest to go unchecked."[57]

41. When discussing rating agencies' regulatory and competitive environment, a *Euromoney* article commented in August 2006 that "[a]t the heart of this is the continuing conflict of interests in the rating agency world. Before the 1970s, rating agencies were paid by the investors; since then the issuer has paid."[58] Similarly, *The New York Times* noted in December 2006, "Congress, European securities regulators, investor advocates and even some rival credit ratings agencies questioned the independence and integrity of the credit rating system, in part because since the early

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the investors who look to the ratings for help in assessing a company's creditworthiness. ...I am encouraging everyone to Email the SEC at: SEC Center for Complaints and Enforcement Tips and complain about the obvious conflict of interest between ratings companies and their clients." (Mish's Global Economic Trend Analysis, March 16, 2005). "[I]f Disney Corp wants to sell some bonds, it pays S&P and Moody's to give them a rating. This creates an obvious conflict of interest. On the other hand, who else is going to pay the agencies?" (Accrued Interest, September 28, 2006). "In short, the problems with the ratings agencies are the same as the problems with auditors. He who pays the piper calls the tune. Except in crises, the ratings agencies are more beholden to the issuers than their subscribers," and "[t]hey are paid by the issuers, and have a conflict of interest. They can argue that they are zealous to protect their reputations, but in the short run, they get paid by issuers to rate deals. Only in times of crisis do they adjust their standards to meet the needs of the bond buyers." (Aleph blog, March 21, 2007).

[54] "US Senate's Shelby urges credit rater changes," *Reuters News*, February 1, 2006.

[55] "Assessing the Current Oversight and Operation of Credit Rating Agencies," Hearing before the Committee of Banking, Housing, and Urban Affairs, March 7, 2006.

[56] Senate Report to Accompany S. 3850: Credit Rating Agency Reform Act of 2006, Report 109-326, September 6, 2006. Note, although Senator Shelby had expressed concern about rating agencies' basic business model, ultimately the Credit Rating Agency Reform Act of 2006 did not abolish the issuer-pays system, but rather focused on increasing competition, transparency, and accountability (see, for example: "Legislation Congress Approves Credit Rating Agency Reform Act of 2006," *Bond Buyer*, September 28, 2006).

[57] "Pressure mounting over US ratings agency 'duopoly'," *Financial Times*, July 11, 2006.

[58] "Ratings agencies face shake-up," *Euromoney*, August 1, 2006.

1970s the services have been paid by the very companies whose creditworthiness they evaluate."[59]

II.B.2. Potential conflicts of interest in structured finance ratings were widely discussed throughout the Class Period

42. Plaintiffs claim that potential conflicts of interest are intensified with structured finance ratings because of specific features of the rating process and of the market for structured finance issues. For instance, Plaintiffs make much of the fact that there were discussions between Moody's and issuers in the process of rating a deal and issuers could pre-structure the securities on the basis of their knowledge of the ratings methodology.[60] Such discussions would have been natural. As in the simple example discussed in II.A.2, an agency would not assign a Aaa rating if the expected loss of the tranche was 1% but would assign such a rating if the expected loss was 0.006% or lower. The issuer could seek to secure a higher rating by adjusting the deal structure and reducing the amount of Aaa notes sold in the deal, and thus discussions with rating agencies would be a natural part of that effort.

43. This issue of whether rating agencies are involved in structuring deals had been debated by market participants before the purported Class Period. The BIS report in 2005 comments that "the agencies' involvement in the structuring of deals[] has sparked concern that potential conflicts of interest in structured finance markets may be especially pronounced. According to this view, the fact that the agencies may have expressed an 'ex ante opinion' regarding deal structure suggests that they are providing 'structuring advice'."[61] On the other hand, Karen Johnson from The Federal Reserve Board stated her opinion in 2004 that "[i]nvolving the raters in the structuring of a

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[59] "Objectivity of a Rating Questioned," *The New York Times*, December 12, 2006.

[60] Complaint, ¶ 45, 325.

[61] The report also notes, however, "[i]n fact, there appear to be no fundamental differences in the rating processes for structured finance products and traditional bonds. ... In both [corporate bond and structured finance] cases, the agency can communicate to the issuer the rating that it plans to assign, with the main difference lying in the issuer's flexibility to adjust credit characteristics in response." ("The Role of Ratings in Structured Finance: Issues and Implications," *Bank for International Settlements, Committee on the Global Financial System*, January 2005 p. 25).

particular issue *ex ante* rather than *ex post* does not amount to rating their own ratings."[62]

44. Plaintiffs also argue that conflicts of interest issues had a completely different dimension for structured finance because, with structured finance, Moody's was dealing with a few repeat issuers, higher fees, and a unique fee structure that they argue lead to "rating shopping."[63] Plaintiffs claim that because of these features, Moody's issued biased ratings for structured securities to gain market share and revenue growth.

45. The distinct features of the structured finance market and rating practices, as well as any potential effect of these features on conflicts of interest, were discussed prior to and throughout the purported Class Period. An article from the *Financial Times* noted in February 2007 that "it is the issuers - often investment banks or structured finance firms - that approach and pay the rating agencies, not investors. Critics highlight this as a potential conflict of interest."[64] It was in plain sight to market participants that there were relatively few structured finance issuers (i.e., investment banks or structured finance firms) compared to myriad issuers of corporate securities.

46. Regarding fee structures, an independent industry consultant remarked in 2005 that "[structured finance rating] fee information is easily leaked. ...Charges are typically seven basis points with a minimum floor charge for smaller transactions." She also commented that "[rating agencies] face constant pressure to earn fees for rating deals... The pressure is applied by frequent issuers or placement agents, such as investment banks, and the heat gets turned up an extra notch when rating agencies are asked to quickly rate complicated deals....In addition to enjoying a cozy relationship with

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[62] Andrew Crockett, Trevor Harris, Frederic Mishkin, and Eugene White (2003), "Conflicts of Interest in the Financial Service Industry: What Should We Do about Them?," *Geneva Reports on the World Economy 5*, p. 100.

[63] Memorandum for Class Certification, pp. 5-6. Complaint, ¶¶43-44.

[64] "Moody's earnings rise 86% on back of complex new products," *Financial Times*, February 8, 2007.

structured finance issuers, rating agencies have also made it clear that they do not hold themselves accountable for unearthing fraud."[65]

47. Similarly, in an article presented in the Brooking-Nomura forum in September 2005 it was noted that: "[f]or corporate debt, the fees are in the range of three to four basis points of the size of the issue... For structured finance issues, fees range up to 10 basis points, and fees for complex transactions are substantially higher, up to $2.4 million." Also, "credit rating agencies continue to face conflicts of interest. ...Credit rating agencies increasingly focus on structured finance and new complex debt products, particularly credit derivatives, which now generate a substantial share of credit rating agency revenues and profits. With respect to these new instruments, the agencies have become more like 'gateopeners' than gatekeepers."[66]

48. Concerns about "rating shopping" behaviors also were frequently discussed. Various academic articles discussed this phenomenon.[67] A researcher from Moody's published an article in 2001 stating that "[t]he credit rating agency industry is subject to moral hazard. Every rating agency has a business incentive to assign high ratings to issuers, who are free to choose among the agencies....Pressure on issuers to 'shop' for the highest rating is increased by their use in regulation. Such practices could undermine the reliability of ratings over time."[68] A Nomura research report noted in February 2006: "On December 19 [2005], securitization professionals received a strong reminder about the consequences of rating shopping.... Rating shopping rarely involves corporate, sovereign, and municipal bonds. However, it is common for securitization

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[65] Janet Tavakoli (2005), "Structured Finance: Rating the Rating Agencies," *GARP Risk Review*, Issue 22, January/February. In my report, I do not mean to suggest that the statements made in Ms. Tavakoli's piece, or in similarly cited works, accurately describe the role of rating agencies or how they carried out their business. These materials are presented here instead in order to demonstrate how much information and how many criticisms were publicly discussed up to and throughout the Class Period.

[66] Frank Partnoy (2005), "How and Why Credit Rating Agencies Are Not Like Other Gatekeepers," Working Paper, available at http://www nomurafoundation.or.jp/data/20050928_Frank_Partnoy.pdf.

[67] "Credit agencies have expressed concerns that the use of credit ratings in capital adequacy regulation may prompt firms to 'shop' for highest ratings in order to reduce their borrowing costs. Such 'rating-shopping' may pressure credit agencies to inflate their ratings, so that it may undermine their credibility." (Misa Tanaka (2003), "The Macroeconomic Implications of the New Basel Accord," *CESifo Economic Studies*, v49(2)). "[I]ssuing firms may engage in 'rate shopping' in which an issuer releases a favorable rating but withholds an unfavorable one." (Jeff Jewell and Miles B. Livingston (2000), "The Impact of a Third Credit Rating on the Pricing of Bonds," *The Journal of Fixed Income*, December, p. 69).

[68] Richard Cantor (2001), "Moody's Investors Service Response to the Consultative Paper Issued by the Basel Committee on Bank Supervision 'A New Capital Adequacy Framework'," *Journal of Banking & Finance*, v25, pp.171-185.

issues."[69] Moody's itself commented in a March 2007 research report that when comparing ratings for jointly rated structured securities, "rating shopping often causes large differences in rating opinions to be unobserved by the market."[70]

49. Finally, it was also in plain sight that structured finance had been a significant contributor to Moody's revenue growth since Moody's became a stand-alone, publicly-traded company in 2000. According to Moody's 10-Ks, structured finance ratings accounted for 39.4% of Moody's rating revenue in 2001, 47.2% in 2004, and 54.2% in 2006. [71]

50. In sum, the existence of potential conflicts of interest from the issuer-pays model was well-known before and throughout the purported Class Period. The characteristics of the structured finance market that allegedly made such conflicts more acute were also transparent to market participants.

II.C. Knowledge of the allegedly undisclosed or misrepresented information would have been widespread among putative class members

51. From 2006 through 2008, upwards of 10% of Moody's common stock was held by top structured finance issuers, managers, and book runners (see Exhibit 3). Upwards of 77% of Moody's common stock was held by institutional investors (including but not limited to those involved in structured finance noted above) during the purported Class Period (see Exhibit 4). A large portion of Moody's shareholders were thus sophisticated investors who likely would have known the limitations of credit ratings and the dynamics of the structured finance market discussed above. These institutional investors would have also known that the potential for conflicts of interest was an

[69] "Rating Shopping – Now the Consequences," *Nomura Fixed Income Research*, February 16, 2006. Also see: "It is indisputable that securitization issuers in the MBS, CMBS, and CDO areas engage in rating shopping. They do openly. However... there is no conclusive evidence that the major rating agencies have ever succumbed to the effects of rating shopping and engaged in competitive laxity. In fact, even though rating shopping became rampant in early 1990s, the major rating agencies achieved highly impressive track records during that time and in the years that followed." (Mark Adelson, "The Role of the Credit Rating Agencies in the Structured Finance Market," Testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, September 27, 2007, p. 10).

[70] "Comparing Ratings on Jointly-Rated U.S. Structured Finance Securities: 2007 Update," *Moody's Investors Service*, March 30, 2007.

[71] Moody's Corporation 2001, 2004, and 2006 Form 10-Ks.

inherent feature of the issuer-pays business model, and likely would have been familiar with the debate in the financial community about this topic.

52. Given the nature of Plaintiffs' claims in this matter, if the market for Moody's stock was efficient during the purported Class Period, and if a fraud happened as Plaintiffs allege, then Moody's stock price would quickly reflect market participants' knowledge of the alleged fraud. This is because the gist of Plaintiffs' claims is that banks issuing structured finance products pressured ratings agencies to issue favorable opinions, and due to the concentrated number of repeat issuer clients, Moody's "chose to please their customers, at the expense of objectivity."[72]

53. As a simple matter of logic, if Plaintiffs' theory were right, then the issuing banks and their employees involved in securitizations necessarily would have had knowledge of the very wrongdoing Plaintiffs are alleging, as they would have been participants in the alleged scheme.[73] Mobility of the employees within the financial services industry, and between banks and ratings agencies in particular, would also tend to make these institutions and yet more employees quickly aware of any such scheme.[74] Indeed, Plaintiffs state (quoting Jerome Fons): "It was also relatively easy for the major banks to play the agencies off of one another because of the opacity of the structured transactions and the high potential fees earned by the winning agency. Originators of structured securities typically chose the agency with the lowest standards, engendering a race to the bottom in terms of rating quality."[75]

54. Not only large financial institutions, but also other investors would likely have learned about the alleged scheme. Research in finance has shown that there is significant

[72] Memorandum for Class Certification, p. 6.

[73] The point that issuing banks *could* have possessed knowledge of any alleged compromise on ratings' integrity is supported by New York Attorney General Andrew Cuomo's recent inquiry into "information the investment banks provided to the rating agencies and whether the bankers knew the ratings were overly positive." ("Prosecutors Ask if 8 Banks Duped Rating Agencies," *The New York Times*, May 12, 2010).

[74] As Mark Adelson pointed out in testimony before Congress, countless former employees from the rating agencies went on to work at large banks and for buy-side investors. One would thus expect that knowledge of any systematic fraud at a ratings agency would have been spread to hundreds or thousands of individuals throughout the financial industry. (Mark Adelson, "The Role of the Credit Rating Agencies in the Structured Finance Market," Testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, September 27, 2007.).

[75] Memorandum for Class Certification, p. 6.

diffusion of information within various social networks in the financial community. For example, studies have found that word-of-mouth effects influence investor behavior, as shown by mutual fund managers' trading decisions being sensitive to trades of other managers in the same city and by individual investors' propensity to pick stocks from the same industry as their neighbors.[76] Another study found that social networks based on educational background (e.g. Harvard Business School alumni) are important mechanisms for facilitating the flow of private information about asset prices.[77] This research suggests that if the issuing banks knew of the alleged fraud, other individuals and institutions probably did as well. I know of no economic methodology to identify who had such knowledge, and no methodology to identify a subset of the proposed class to which this knowledge *might* be imputed.

55. Knowledge of the alleged scheme by many active market participants coupled with lasting inflation is inconsistent with an efficient market. In an efficient market, information is rapidly incorporated into the stock price and investors trade so that any source of predictability in risk-adjusted returns that is known to investors is quickly incorporated in the stock price.[78] If investors have reason to believe that a stock price is inflated because of a misrepresentation, then those investors will tend to sell the stock, driving the price down ahead of the expected bad news. If issuing banks had reason to believe that Moody's stock price was inflated by misrepresentations about Moody's methodologies or independence, then in an efficient market the issuing banks (and other parties with knowledge of the scheme) would quickly act on their knowledge and seek to make arbitrage profits by selling Moody's stock, eliminating the alleged inflation in the process.[79] On the other hand, these investors would not have purchased (or held) Moody's common stock had they believed that Moody's improperly carried out

[76] Harrison Hong, Jeffrey D. Kubik, and Jeremy C. Stein (2005), "Thy Neighbor's Portfolio: Word-of-Mouth Effects in the Holdings and Trades of Money Managers," *The Journal of Finance*, v 60(6), pp. 2801-2824; Zoran Ivkovic and Scott Weisbenner (2007), "Information Diffusion Effects in Individual Investors' Common Stock Purchases: Covet thy Neighbors' Investment Choices," *The Review of Financial Studies*, v20(4), pp. 1327-1357.

[77] Lauren Cohen, Andrea Frazzini, and Christopher Malloy (2008), "The Small World of Investing: Board Connections and Mutual Fund Returns," *Journal of Political Economy*, v116(5), pp. 951-979.

[78] Academic studies suggest that in an efficient market, stock prices should fully reflect new material information immediately after the release of the information. *Supra*, footnote 2.

[79] For a detailed discussion of the arbitrage mechanism, see: Nicholas Barberis and Richard Thaler (2003), "A Survey of Behavioral Finance," Chapter 18 in "Handbook of the Economics of Finance," George Constantinides, Milton Harris, and René Stulz, eds., *Elsevier Science B.V.*.

structured finance ratings, because these investors would have expected a drop in Moody's stock price when the supposed "truth" behind Moody's structured finance ratings was revealed. Therefore, either: 1) the market for Moody's stock was efficient and thus widespread knowledge of the alleged fraud among large market participants would quickly eliminate any artificial inflation due to the fraud (and thus there could be no basis to assert loss causation); 2) the market for Moody's stock was inefficient (and thus there could be no basis to presume reliance under the "fraud on the market" theory); or 3) there was no fraud.

III. Materiality and Loss Causation

III.A. Plaintiffs fail to demonstrate that any alleged misrepresentation was material

56. Plaintiffs assert in their Memorandum for Class Certification that "[a]ll of Defendants' misrepresentations were material. Because independence is essential to an NRSRO's functionality as a financial gatekeeper... [and] the decision to evaluate originator standards in rating structured finance instruments had serious consequences on the accuracy of ratings issued by Moody's..."[80] However, Plaintiffs have provided no empirical basis to substantiate their assertion that any of the alleged misrepresentations were "material" to investors in Moody's common stock.

57. To assess materiality of any given piece of information to investors, financial economists normally rely on a technique known as an "event study" to measure the stock price impact of new information that enters the marketplace. Event studies have been widely used for almost 40 years, and I have employed this technique repeatedly in my peer-reviewed research.[81] To a financial economist, the notable lack of an event study in Plaintiffs' filings undermines the claim that alleged misstatements were

[80] Memorandum for Class Certification, pp. 7-8.

[81] For a review of the role of event studies in litigation, see: Mark L. Mitchell and Jeffry M. Netter (1994), "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, v49, pp. 545-590. My resume lists my publications. The first event study listed on my resume is "The Eurobond Market and Corporate Financial Policy: A Test of the Clientele Hypothesis," with Yong Cheol Kim, *Journal of Financial Economics*, 1988, v22 (2), pp. 189-205.

material. I will explain below in more detail how event studies should be done in this setting and why Plaintiffs have failed to demonstrate that the alleged misrepresentations were material to investors.

58. Professor Craig MacKinlay sums up the essence of the event study approach: "[u]sing financial market data, an event study measures the impact of a specific event on the value of a firm."[82] Typically, event studies use a regression model to isolate the firm-specific stock price return after controlling for market- and industry-wide factors. Once a relationship between the firm's returns and these control factors is estimated, it is possible to predict a stock's expected return on any given day based on market and industry factors, i.e. what the return would have been absent the firm-specific "event."[83] The difference between a stock's actual return and its expected return is called the stock's "abnormal return." Few, if any, abnormal returns will be exactly zero. However, financial economists view such non-zero abnormal returns as immeasurably different from zero unless they cross a certain threshold. Abnormal returns that cross the threshold – typically set so the researcher is 95% confident the return is not due to random chance – are deemed "statistically significant" while other abnormal returns are attributed to random noise.[84] A statistically significant abnormal return in an event study is typically taken to measure the impact the tested event had on the firm's value.

59. Event studies commonly estimate the relationship between a firm's stock returns and the market and industry returns over a period that precedes the event being analyzed. In this case, however, estimating the model prior to the purported Class Period poses some statistical problems. To evaluate whether an abnormal return is statistically significant, one must compare it with the standard deviation of all abnormal returns over the estimation period. Standard deviation is a volatility measure, and owing to the

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[82] A. Craig MacKinlay (1997), "Event Studies in Economics and Finance," *Journal of Economic Literature*, v35(1), p. 13. This article also contains many examples of event studies and citations to other academic articles discussing the method.

[83] In the language of financial economists, the expected return is actually the "conditional expected return," that is, the expected return conditional on the day's observed market and industry returns.

[84] A 95% confidence level corresponds to t-statistics exceeding 1.96 in absolute value, which is a typical benchmark for evaluating statistical significance in event studies. See: Mark L. Mitchell and Jeffry M. Netter (1994), *The Business Lawyer*, 1994, v49, p. 564: "An often used convention is the five percent rule – values greater than or equal to 1.96 standard deviations from the mean value are considered significantly different from the typical value because there is only a five percent chance that a randomly selected value will be 1.96 or more standard deviations from the true mean."

market turmoil during the credit crisis, volatilities for the whole market and especially financial stocks like Moody's were broadly greater in 2007 and 2008 compared with earlier years, as seen in Exhibit 5.[85] This gradual increase in volatility means any model estimated prior to the proposed Class Period would set an artificially low threshold for assessing the statistical significance of abnormal returns during the proposed Class Period. I therefore chose to estimate my model for Moody's stock return using data from the start of the proposed Class Period through the last potential disclosure date from the Plaintiffs' filings, October 22, 2008.[86] Since my objective is to evaluate the stock-price reactions to the alleged misstatements or disclosures mentioned in Plaintiffs' filings, I exclude the dates when these alleged misstatements or disclosures are made so that they do not affect the estimation of my model.[87]

60. Similarly, due to the pronounced increase in volatility after the financial crisis started, if the model was simply estimated over the entire period, the standard deviation of Moody's stock returns -- to be used as a benchmark to judge statistical significance -- would be too high early in the purported Class Period because its estimation incorporates post-crisis data points corresponding to a time of high volatility, and too low later because much of the data used would be from a pre-crisis period of lower volatility. Therefore, I've sub-divided my estimation period into three parts based on major events that unfolded during the credit crisis and would likely impact market volatility.

61. My first sub-period runs from February 3, 2006 through August 8, 2007, the day before BNP Paribas suspended redemptions from three of its funds due to subprime problems, deemed by many as a key development when the system-wide credit crisis started to

[85] The VIX Index is a widely-followed measure of market volatility. It closed at 11.79 on February 3, 2005 (one year before the proposed Class Period) and 12.96 on February 3, 2006 (the first day of the proposed Class Period) but had grown over 60% to close at 20.80 on October 24, 2007, the last day of the proposed Class Period. The VIX spiked further, generally closing above 50 (and even as high as 80.06) during October 2008. See:
http://www.cboe.com/publish/ScheduledTask/MktData/datahouse/vixcurrent.csv

[86] Another way to avoid the problem of gradual changes of parameters is to perform "rolling" estimation where a separate model is estimated for each day based on the previous 252 non-event data points. I also estimated rolling models, and my inferences regarding statistical significance of allegation days are robust to this alternative specification.

[87] The practice of estimating within an examination period and excluding event days is common in cases like this one where there is a compelling statistical reason. See, for example: A. Craig. MacKinlay, (1997), "Event Studies in Economics and Finance," *Journal of Economic Literature*, v35(1), pp. 13-39, at p. 20.

unfold.[88] The second sub-period runs from August 9, 2007 through September 12, 2008, the Friday prior to Lehman Brothers filing for bankruptcy,[89] after which market volatility skyrocketed to an unprecedented level (see Exhibit 5). And the third estimation sub-period runs from September 15, 2008 to October 22, 2008.[90]

62. I determined that the best modeling specification estimates Moody's stock return as a function of three factors: a) the return on the NYSE/Nasdaq Composite index (a market proxy), b) the return on the S&P 500 Financials Index (an index of the financial industry, of which Moody's is a small component), and c) the return on an equal-weighted index of the return of the publicly-traded parents of Fitch and Standard & Poors, Fimalac and McGraw-Hill respectively (a proxy for the credit rating industry).[91] I used the relationship established by this regression model to estimate Moody's expected returns and calculate abnormal returns on all alleged misstatement and disclosure dates. As robustness checks, I have also used model specifications with (1) only the market index, (2) only the market index and the S&P 500 Financial index, or (3) the market index, the S&P 500 Financial Index, and the peer companies according to Moody's annual report. My inferences regarding statistical significance of stock returns on the event days discussed in this report and my conclusions regarding materiality and loss causation are robust to these alternative specifications.[92]

63. Event study results are essential in assessing both materiality and loss causation. If an alleged misstatement is material to investors, I would expect to observe a statistically

[88] For example, see: John B. Taylor and John C. Williams (2009), "A Black Swan in the Money Market," *American Economic Journal: Macroeconomics*, 2009, v1(1), pp. 58-59; Markus K. Brunnermeier (2009), "Deciphering the Liquidity and Credit Crunch 2007 – 2008," *Journal of Economic Perspectives*, v23(1), pp. 77-100.

[89] "Wall Street Down, Lehman Out," *The Wall Street Journal*, September 15, 2008.

[90] Unsurprisingly, statistical tests show that the volatility of the second and the third sub-periods is significantly higher than the volatility of the preceding sub-period(s).

[91] I determine the best model specification by looking at, among other factors, the goodness of fit of each specification, as measured by the adjusted R-squared of the regression models. Note that Fimalac S.A. is a French company and its common stock trades on the Paris stock exchange in Euros. I use U.S. dollar stock returns for Fimalac in my analysis. These stock returns are obtained by converting the share price of Fimalac from Euros to U.S. dollars. I have also conducted the event study excluding Fimalac from the peer group as a sensitivity test and my inferences regarding the results do not change.

[92] The list of the peer firms includes Dow Jones & Company, Inc., The McGraw-Hill Companies, Pearson PLC, Reuters Group PLC, Thomson Corporation and Wolters Kluwer. See Moody's Corporation 2007 Form 10-K, p. 15.

significant positive abnormal return on that date.[93] As shown in Exhibit 6, I have examined all the days on which alleged misrepresentations occurred according to the Opinion and Order and Plaintiffs' Memorandum for Class Certification.[94] On these days, Moody's allegedly misrepresented its independence in various annual reports, SEC filings, and its Code of Professional Conduct report, and misrepresented its rating methodology regarding loan originator standards in research reports. However, during the entire purported Class Period, there is no day on which Plaintiffs allege Moody's made a misstatement that is associated with a statistically significant and positive abnormal return.[95] Therefore, contrary to what Plaintiffs have claimed, the market did not deem the information released on those days to be material.

III.B. Plaintiffs fail to present a basis to prove loss causation on a class-wide basis

64. In order to demonstrate that investors suffered losses due to the alleged misrepresentations, I have been told that Plaintiffs must show (a) that the stock's price declined when the disclosures that corrected or revealed previous alleged misrepresentations became public and (b) that the decline was caused by the revelation of defendant's alleged fraud, rather than other non-allegation-related factors such as changed economic circumstances, changed industry conditions, changed investor expectations, or new firm-specific non-litigation-related events.

65. Plaintiffs have failed to put forward scientific evidence showing either that Moody's stock price declined when the alleged curative disclosures were made, or that Moody's

[93] To the extent that there is more than one piece of news that enters the market in a given day, a daily event study cannot isolate the effect of each individual disclosure. In the course of my analysis, I have also considered how potentially confounding news could alter the conclusions from a daily event study.

[94] These days include April 1, 2003, June 2, 2005, March 1, 2006, March 23, 2006, March 1, 2007, March 22, 2007, April 2, 2007, and October 3, 2007. (In Re: Moody's Corporation Securities Litigation, Opinion and Order, filed February 23, 2009, pp.7-11, 23-29; Memorandum for Class Certification, pp. 6-7).

[95] As shown in Exhibit 6, Plaintiffs also allege that two misrepresentations occurred before the start of the purported Class Period. On April 1, 2003, Moody's allegedly misrepresented its rating methodology, and Moody's stock price increased by 1.73%. On the same day, the NYSE index increased 1.20%, and S&P 500 Financials index increased by 2.23%. On the next trading day, Moody's stock return was 0.55%, the NYSE index moved by 2.25%, and the S&P 500 Financials index moved by 2.83%. On June 2, 2005, Moody's published its Code of Professional Conduct and allegedly made misrepresentations regarding its independence. On June 2, 2005, Moody's stock return was -0.30%, the NYSE index moved by 0.16%, and the S&P 500 Financials index moved by -0.18%. On the next trading day, Moody's stock return was -0.32%, the NYSE index moved by -0.43%, and the S&P 500 Financials index moved by -0.69%.

stock price declines were caused by the revelation of alleged previous misrepresentations, rather than by other non-fraud-related factors, such as the unprecedented financial crisis that impacted the whole financial industry. The claims to that effect in the Complaint and in Plaintiffs' Memorandum for Class Certification do not amount to scientific evidence.

66. In this section, I will discuss in more detail why Plaintiffs have not demonstrated a way to link the decrease in Moody's stock price to revelation of the alleged fraud, rather than to the unprecedented financial crisis. I will first discuss the contributing factors to the crisis, and the absence of any basis provided by Plaintiffs to assert that the financial crisis itself was caused by Moody's deceiving the market. I will then discuss Plaintiffs' failure to show that Moody's stock price declined due to corrections of alleged misrepresentations on each alleged curative disclosure day. Finally, I will show that putative class members, including certain lead Plaintiffs, could have different incentives (and different ability) to claim loss causation based on different events.

III.B.1. The financial crisis during 2007 and 2008

67. Many factors laid the foundation for the crisis. After the recession of 2001, the United States as well as the global economy experienced a period of steady growth.[96] The growth of global GDP was accompanied by an even faster growth in global financial assets. Increasing globalization also facilitated capital flows across countries, especially funds from emerging countries to industrial nations via investments in financial assets.[97] In the U.S., the Federal Reserve pursued a policy of cutting short-term interest rates through the end of 2003 in an effort to help the economy.[98] The combination of low interest rates and increased supply of funds resulted in rapid growth in credit.

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[96] "World Economic Outlook: Spillovers and Cycles in the Global Economy," *International Monetary Fund*, April 2007, p. 211.

[97] "Mapping Global Capital Markets: Fifth Annual Report," *McKinsey & Company*, October 2008, pp. 16-24.

[98] "Selected Interest Rates," Federal Reserve Statistical Release, http://www.federalreserve.gov/releases/h15/data.htm.

68. During the same time, a government desire to increase home ownership coupled with the easy availability of housing loans helped home ownership grow rapidly.[99] Section II.A.2 discusses that there was tremendous growth in subprime mortgage securitizations (as well as in other non-prime securitizations such as Alt-A securitizations). The growth in non-prime originations was viewed favorably at the time, as it coincided with a strong push by the federal government to increase housing "affordability" for lower-income families.[100]

69. There was much financial innovation to create mortgage products that would make it easier for families that did not qualify for prime mortgages to obtain mortgages they could afford. One example of such innovations was the introduction of option-ARMs. With an option-ARM mortgage, the mortgage holder had flexibility to make a lower mortgage payment. However, when she chooses to do so the principal amount of the mortgage is increased, reducing equity and increasing risk.[101]

70. It is important to note that the spectacular growth of house prices followed by a crash did not take place everywhere in the United States. Vast regions were relatively unaffected by house price increases. Further, a number of foreign countries experienced so-called housing bubbles.[102] These patterns in housing appreciation show that it is implausible to blame securitization or the credit rating agencies for housing appreciation. Securitization was available in regions of the U.S. where house prices increased little, and often its availability was extremely limited in some of the foreign countries with sharp increases in house prices. However, a common factor among

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[99] U.S. Census Bureau, US Department of Commerce, "Homeownership Rates for the US and Regions: 1965 to Present," http://www.census.gov/hhes/www/housing/hvs/historic/files/histtab14 xls

[100] Laurie Goodman, Shumin Li, Douglas Lucas, Thomas Zimmerman, and Frank Fabozzi (2008), "Subprime Mortgage Credit Derivatives," *John Wiley & Sons, Inc.*, pp. 299-301, 310; John Taylor (2009), "Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis," *Hoover Institution Press*, 1st ed., p. 11.

[101] Laurie Goodman, Shumin Li, Douglas Lucas, Thomas Zimmerman, and Frank Fabozzi (2008), "Subprime Mortgage Credit Derivatives," *John Wiley & Sons, Inc.*, pp. 16, 299-301, 310.

[102] R. Glenn Hubbard, and Christopher J. Mayer (2009) "The Mortgage Market Meltdown and House Prices," *The B.E. Journal of Economic Analysis & Policy*: v9(3), Article 8, pp. 1-7.

countries that experienced high housing appreciation is monetary policies that led to low interest rates.[103]

71. As long as house prices were increasing, the risks associated with subprime mortgages were low. However, as shown in Exhibit 7, housing appreciation slowed down in later 2006, and then house prices started to fall. When house price appreciation slowed and turned negative, mortgages that were originated in 2006 and 2007 experienced an unprecedented default rate that surprised the market.[104] As discussed earlier in this report, the unexpectedly high early payment default rate of recent-vintage loans and originator-specific performance variation were flagged by Moody's as performance data came in.

72. Though market participants came to realize the looming problems with the recent vintage subprime mortgages in late 2006 and early 2007, until June 2007 it still seemed to many that the problem was contained, and it appeared highly unlikely that subprime losses could cause a credit seizure in the whole financial market. In the first half of 2007, many market participants and regulators shared the view that "the severe contraction in the subprime mortgage market will not be so great as to threaten the expansion."[105] Credit spreads, a market measure for the compensation premium investors demand to bear the risk of bonds with default risk, reached the lowest level in recent years in June 2007 (as shown in Exhibit 8, which tracks high yield bond spread). Even in July 2007, Federal Reserve officials, including Chairman Ben Bernanke, commented that the broader economic impact of the subprime problems was expected

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[103] John Taylor (2009), "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong," NBER Working Paper 14631; John Taylor (2009), "Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis," *Hoover Institution Press*, 1st Edition, pp. 7-10; Rudiger Ahrend, Boris Cournede, and Robert Price (2008), "Monetary Policy, Market Excesses and Financial turmoil," OECD Economics Working Paper No. 597.

[104] "The rapidity of the decline in the subprime mortgage market has likely taken most market participants and observers by surprise." ("A Simple Guide to Subprime Mortgages, CDO, and Securitization," *Citi*, April 13, 2007). See also: Laurie Goodman, Shumin Li, Douglas Lucas, Thomas Zimmerman, and Frank Fabozzi (2008), "Subprime Mortgage Credit Derivatives," *John Wiley & Sons, Inc.*, pp. 301-308.

[105] "JP Morgan Q&A: A Fundamental View of Subprime Fallout," *JP Morgan*, March 19, 2007. See: "Subprime mortgage market woes seen well contained," *Reuters News*, April 11, 2007; "Bernanke Believes Housing Mess Contained," *Forbes*, May 17, 2007. Also: "Morgan Stanley's Fixed Income team, while cautious on the outlook for credit, believes that the credit market broadly speaking is currently experiencing an orderly re-pricing of risk and an all-out liquidity crunch appears unlikely at this point." ("Moody's Sub-prime Issues Manageable; Buying Opportunity," *Morgan Stanley*, June 28, 2007).

to be limited, and the credit problems from the subprime crisis "were not leading to systemic problems in financial markets."[106]

73. However, the market for subprime-backed securities worsened sharply as some hedge funds specializing in subprime shut down and as evidence of worsening creditworthiness of the underlying mortgages increased. These developments led to concerns about mark-to-market losses and "fire sales," which put further pressure on prices and led to growing illiquidity, so that by August 2007 credit spreads were sharply up for subprime securities, while one bank, BNP Paribas, concluded that it could not put a value on securities held by some funds.[107] As investors lost confidence, they tried to exit their investments in such instruments, but found few buyers.

74. The impending liquidity squeeze in the asset-backed commercial paper market and the disruption in interbank money markets in August 2007 (see Exhibits 9 and 10) signaled the advent of a systemic crisis and led to decreases in the value of Aaa mortgage-backed securities (Exhibit 11), decreases that had seemed extremely unlikely *ex ante*, and that had much less to do with changes in the creditworthiness than with the growing lack of liquidity and changes in risk premiums.[108] These effects are important during a credit crisis, but they are not incorporated into ratings, as I noted above in paragraph 24.

75. The stock market crash of 1987 destroyed more financial wealth than the subprime problems did in 2007. Why was it, then, that the crisis that started in 2007 was considered the worst financial crisis and the worst recession since the Great Depression of the 1930s? The consensus of economists on this issue is straightforward: the stock market crash of 1987 did not affect the capitalization of banks; in contrast, the collapse

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[106] "STOCKS NEWS US-Housing not derailing growth outlk-Fed's Plosser," *Reuters News*, July 11, 2007; "Fed's Bernanke: Sees Economy Strengthening Into '08," *Dow Jones Capital Markets Report*, July 18, 2007; "Fed's Warsh says no systematic risk from subprime," *Reuters News*, July 11, 2007.

[107] Markus K. Brunnermeier (2009), "Deciphering the Liquidity and Credit Crunch 2007-2008," *Journal of Economic Perspectives*, v23(1), pp. 82-87.

[108] Indeed, in April 2008, the Bank of England published an analysis of the value of subprime asset-backed securities which showed that the main driver of lost value in tranches rated Aaa at issuance was not deterioration of creditworthiness, but rather other factors that economists typically would classify as liquidity and risk premium effects. ("Financial Stability Report," *Bank of England*, April 2008, Issue 23, pp. 17-25).

of the credit boom affected the balance sheets of banks and their capitalization.[109] Banks had been moving from a traditional banking model to an "originate and distribute" model in which they fund their business by securitizing the loans they have generated.[110] During this crisis, the securities held by banks had lost value; as banks absorbed losses from their securities and their loans became impaired, their equity fell. Banks are subject to regulatory capital requirement, and with less equity, banks were forced to raise supplemental equity and to cut back on issuing new loans.[111]

76. Because of the losses incurred by banks and the severe contraction of the securitization market, financing became hard to obtain, which worsened the crisis as it led to a slowdown of economic activity and prevented borrowers from taking advantage of the decline in interest rates. The recession that followed in 2008 naturally decreased the creditworthiness of many borrowers, compounding the problems in the credit markets and further damaging banks' balance sheets.

77. The bank capitalization problems turned a manageable housing recession into a housing crisis, which worsened the recession, worsened the default rates on mortgages, and in turn worsened bank balance sheets further. The vicious cycle eventually led to an unprecedented series of financial institution failures: the takeover of Bear Stearns on March 16, 2008, the run on IndyMac Bank in July 2008, Fannie Mae and Freddie Mac's placement into conservatorship on September 7, 2008, the takeover of Merrill Lynch on September 14, 2008, the bankruptcy of Lehman Brothers on September 15, 2008, the bailout of AIG on September 16, 2008, and the failure of Washington Mutual on September 25, 2008.[112]

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[109] See: Markus K. Brunnermeier (2009), "Deciphering the Liquidity and Credit Crunch 2007-2008," *Journal of Economic Perspectives*, v23(1), pp. 77–100.

[110] "Global Financial Stability Report: Containing Systematic Risks and Restoring Financial Soundness," *International Monetary Fund*, April 2008, pp. 31-32, 74-77, 91.

[111] *Ibid.*, p. 34.

[112] See, for example: "JPMorgan Acts to Buy Ailing Bear Stearns at Huge Discount," *The New York Times*, March 16, 2008; "Lax Lending Standards Led to IndyMac's Downfall," *The New York Times*, July 29, 2008; "Treasury to Outline Fan-Fred Plan," *The Wall Street Journal*, September 7, 2008; "Wall Street Down, Lehman Out," *The Wall Street Journal*, September 15, 2008; "Fed's $85 Billion Loan Rescues Insurer," *The New York Times*, September 17, 2008; "Government Seizes WaMu and Sells Some Assets," *The New York Times*, September 25, 2008.

78. In summary, the financial crisis of 2007-2008 flowed from many factors that were outside of Moody's control. Plaintiffs' accusation that the crisis was a result of Moody's alleged misstatements about independence or methodology (or even Moody's allegedly flawed ratings themselves) is highly implausible and unsubstantiated.

III.B.2. Plaintiffs have not shown that the crisis was caused by Moody's structured finance rating activity

79. Plaintiffs assert that the "[d]estruction of the [c]redibility of [s]tructured [f]inance [c]redit [r]atings [r]esulted in [d]emolishing [l]arge [p]arts of the [s]tructured [f]inance [m]arket and with it, [r]ating and [r]evenue [o]pportunities."[113] Plaintiffs have not demonstrated that the developments in the structured finance market during the financial crisis were caused by Moody's allegedly misstated rating practices, and Plaintiffs' assertion to that effect is contradicted by various findings discussed below.

80. As Section II demonstrated, the key risks and important facets of the structured finance marketplace and the rating methodological issues that broadly underpin the Plaintiffs' claims in this matter were known by market participants before -- and indeed throughout -- the proposed Class Period. Even if one does not believe that Moody's adequately managed potential conflicts, modeling methodologies employed in the ratings process were known, and potential weaknesses were openly debated by academics and practitioners alike, providing an additional safeguard against potential bias. Sophisticated investors knew that ratings were but one of many factors they should consider when evaluating a security, and if they were skeptical of an assigned rating they could use the published models and their own models to evaluate it.

81. The models of market participants and academics had important common elements. For example, the foundation for the pricing and risk models of credit derivatives was a technical tool based on the normal distribution (the Gaussian copula). This tool was

[113] Complaint, ¶¶ 373-392.

used by financial institutions and among institutional investors. It forms the theoretical basis for the structured finance rating models as they existed during the Class Period.[114]

82. Rating agencies were not somehow unique or distinct in the way they thought about the risks of structured finance. Traders and investors used similar approaches. One recent published study examines why bank analysts collectively failed to anticipate the subprime crisis: "[A]nalysts [of major banks] used fairly sophisticated tools to evaluate these mortgages but were hampered by the absence of episodes of falling prices in their data...[M]any analysts anticipated the possibility of a crises in a qualitative way...but never fleshed out the quantitative implications. Finally, analysts were remarkably optimistic about HPA."[115]

83. In addition to analysts at banks, there are many highly sophisticated investors in the securities markets. These investors had access to mountains of data and were familiar with the credit rating methodologies.[116] They could make a killing by shorting securities that were overpriced due to any rating bias. Yet, the existing data on the prices of Aaa tranches of home equity loan securitizations for 2006, as depicted in Exhibit 11, shows that the market did not discount these tranches until July 2007. The fact that sophisticated traders did not push down the price of these tranches in 2006 implies that their models did not suggest a crisis was on the horizon, which casts doubt on Plaintiffs' assertion that there was a systematic, purposeful bias in the ratings of these tranches.

84. Further, given that the characteristics of the structured finance market were transparent, if -- as Plaintiffs suggest -- Moody's was over-rating structured finance issues due to

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[114] Jian Hu (2007), "Assessing the Credit Risk of CDOs Backed by Structured Finance Securities: Rating Analysts' Challenges and Solutions," Moody's Investors Service Working Paper. However, this technical tool was subject to press scrutiny. See, for example, "Slices of Risk: How a Formula Ignited Market That Burned Some Big Investors," *The Wall Street Journal*, September 12, 2005. "Recipe for Disaster: The Formula That Killed Wall Street," *Wired Magazine*, February 23, 2009.

[115] Gerardi, Kristopher, Andreas Lehnert, Shane Sherlund, and Paul Willen (2008), "Making Sense of the Subprime Crisis," *Brookings Papers on Economics Activity*, Fall, pp. 127-128, 141-142.

[116] See, for example: *ibid.*, p. 130; Manuel Adelino (2009), "Do Investors Rely Only on Ratings? The Case of Mortgage-Backed Securities," MIT Working Paper, presents empirical evidence that RMBS pricing at issuance is based on more than just the assigned rating, which suggests sophisticated investors differentiated between equivalently-rated deals and were not blindly depending on the CRAs: "The results show that investors did not rely exclusively on ratings when pricing the deals at origination. In fact, yield spreads have predictive power for both the probability of downgrade and of default after taking into account all the information contained in the ratings."

conflicts of interest, market participants should have been aware of such a potential bias all along. At the very least, issuers could recognize the bias. After all, issuers knew as much, if not more, about the underlying collateral as Moody's did. If the ratings were biased and the market mispriced the securities, then it would have made no sense for the issuers to hold them because their yield would have been too low to reflect the risk that issuers knew was present. However, it is well-known that the issuers were holding large amounts of home-equity loan securitizations, and ultimately suffered large losses, which undermines Plaintiffs' hypothesis.[117]

85. The Global Financial Stability Report published by the International Monetary Fund reports that as of March 2008, banks globally incurred $193 billion of subprime related losses, and were expected to incur $95 billion more. Securitized debt accounts for the bulk of the losses.[118] Such losses were not only incurred by banks, but shared by hedge funds, financial guaranty insurers and other financial companies alike.[119] Notably, as shown in Exhibit 12, major structured finance issuers, managers, and book runners also suffered large, widely-publicized losses on subprime and Alt-A RMBS, CDOs, and related structured products held on their own balance sheets in 2007 and 2008.

86. The BIS sums up what is discussed in this section nicely, noting in recapping post-crisis interviews it conducted that market participants were "generally reluctant to blame the CRAs for not foreseeing the wider implications of the subprime crisis, often noting that the CRA's recent shortcomings in risk evaluation were widely shared among market participants."[120]

III.B.3. Plaintiffs have not shown that the alleged misrepresentations caused Moody's ratings actions during the crisis, or any related stock price drop

[117] Gary Gorton (2008), "The Panic of 2007," NBER Working Paper, p. 70; "Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness," *International Monetary Fund*, April 2008, pp. 12-13, 52, 78.

[118] "Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness," *International Monetary Fund*, April 2008, pp. 50-52. Also note that Bloomberg reported $332 billion of write-downs "stem[ming] from the collapse of the U.S. subprime- mortgage market" for banks and securities firms globally from the beginning of 2007 to May 2008. ("Subprime Losses Top $379 Billion on Balance-Sheet Marks: Table," *Bloomberg*, May 19, 2008).

[119] "Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness," *International Monetary Fund*, April 2008, pp. 12, 78.

[120] "Ratings in Structured Finance: What Went Wrong and What Can be Done to Address the Shortcomings?," *Bank for International Settlements, Committee on the Global Financial System*, July 2008, p. 8.

87. Had Moody's been systematically inflating ratings because the structured finance market was overly prone to potential conflicts of interest as Plaintiffs allege, data on ratings performance should also reveal such inflation to market participants, arguably even before the purported Class Period. However, it does not appear from the evidence on the historical performance of structured finance ratings that they performed systematically more poorly than the corporate finance ratings.[121]

88. In a study of rating transitions from 1984 to 2008, Moody's reports that 97.79% of structured finance Aaa-rated issues still had that rating twelve months later in contrast to 92.76% of the Aaa-rated corporate debt issues.[122] An independent study published in 2004 concludes that the probability of default after five years for an Aaa-rated asset-backed securities ("ABS"), commercial mortgage backed securities ("CMBS"), or RMBS issue was 0.01% or less, in contrast to 0.17% for an identically-rated corporate bond.[123] In a Moody's study published in 2005, it was reported that the cumulative loss rate for initially Aaa-rated structured finance securities was 0.04% after 5 years during the period 1993-2004, and the cumulative loss rate was 0.00% for home-equity loan deals, including subprime securities.[124] Strikingly, at the time, some researchers criticized the agencies for being too conservative in their ratings of structured finance.[125]

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[121] The traditional approach to evaluating the performance of credit ratings is to consider rating transitions, i.e., changes in ratings, across long periods of time and across different sectors.

[122] "Structured Finance Rating Transitions: 1983-2008," *Moody's Investors Service*, March 2009.

[123] Douglas J. Lucas, Laurie S. Goodman, and Frank J. Fabozzi (2004), "Default Rates on Structured Finance Securities," *Journal of Fixed Income*, pp. 44-53.

[124] "Default & Loss Rates of Structured Finance Securities: 1993-2004," *Moody's Investors Service*, July 2005, pp. 38-39. Another striking piece of evidence is that from 1984 to 2004 on average only 0.03% of Aaa-rated structured finance securities reached an extremely distressed rating of Caa or lower twelve months later. ("Structured Finance Rating Transitions: 1983-2005," *Moody's Investors Service*, February 2006, p. 8).

[125] Douglas J. Lucas, Laurie S. Goodman, and Frank J. Fabozzi (2004), "Default Rates on Structured Finance Securities," *The Journal of Fixed Income*, pp. 44-53.
It was always clear, however, that ratings volatility for corporate bonds and structured finance transactions was different. For instance, for the period 1984-2008, the average downgrade for a structured finance security was 6.99 notches; it was 1.78 notches for a corporate debt issue. Nonetheless, this does not indicate that the initial structured finance rating was of poor quality, because a rating is not meant to say anything about the extent of a potential downgrade. See: "Structured Finance Rating Transitions: 1983 – 2009," *Moody's Investors Service*, March 2009, p. 12. This was also noted in studies before the purported Class Period. See, for example: "Structured Finance Rating Transitions: 1983 – 2005," *Moody's Investors Service*, February 2006, p.2.

89. In 2007, Moody's downgraded 8,725 structured finance issues and the average downgrade was almost twice the size of the average downgrade in 2006.[126] Plaintiffs attribute the unusual waves of downgrades to Moody's alleged misrepresentations regarding its independence.[127]

90. However, the unusually high rate of downgrades in 2007 took place mostly in one segment of the structured finance universe, namely structured finance deals that had subprime loans as collateral. U.S. ABS (excluding home equity loans) and CMBS, for example, had a much lower downgrade rate than historical average.[128] In contrast, home equity loan deals (including subprime) experienced a downgrade rate of 18.1%, which was six times the average annual rate of 3.0% from 1998 to 2007,[129] and accounted for 61.2% of the total downgrades in 2007 although these securities represented only 25.3% of total rated structured finance securities outstanding as of January 1, 2007. In addition, almost 80% of the home equity loan securities downgrades in 2007 were for securities issued in 2006 and 2007.[130]

91. The fact that only a very specific sector of the structured finance market was the root of the recent crisis suggests that *endemic* conflicts of interest did not plague Moody's structured finance ratings systematically, as Plaintiffs suggest. The historic rating performance record for this sector and for structured finance in general had been good prior to the crisis, and it is hardly unusual for ratings downgrades to be clustered in a

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[126] "Structured Finance Rating Transitions: 1983-2007," *Moody's Investors Service*, February 2008, p. 5-6. Despite the unusual downgrades, the downgrade rate that year was higher for corporate debt than it was for structured finance: 8.72% versus 7.40% (*Ibid.*, p. 10).

[127] Complaint, ¶¶ 248-280.

[128] According to a Moody's study, U.S. ABS securitizations excluding home equity loans (home equity loans include subprime) had a downgrade rate of only 0.4% in 2007, much lower than the average annual downgrade rate of 4.8% from 1998 to 2007. Notably, 0.0% of credit card and auto loan securitizations, and only 0.1% of student loan securitizations, were downgraded. Similarly, U.S. CMBS had a downgrade rate of 0.8% in 2007, lower than the historical average of 2.6%; U.S. CBO, CLO, and synthetic CDOs had downgrade rates from 0.2% to 2.7%, all lower than the historical average. In fact, for U.S. ABS securitizations other than home equity loans, CMBS, CBOs, and CLOs, the upgrade rate *exceeded* the downgrade rate in 2007. ("Structured Finance Ratings Transitions: 1983-2007," *Moody's Investors Service*, February 2008).

[129] *Ibid.*, pp.2, 4-5, 26. Structured finance CDOs experienced a downgrade rate of 20.1% because of the problems with subprime and Alt-A loans originated in 2006 and 2007.

[130] Similarly, 90% of US CDO downgrades in 2007 occurred among structured finance CDOs issued in 2006 and 2007 that had the most significant exposures to the poorly performing 2006 and 2007 subprime and Alt-A vintages. (*Ibid.*, p. 4-5, 15-16, 25-26).

sector when market conditions change.[131] The downgrades resulting from the subprime crisis were consistent with other historic examples of clustering when a common shock affects multiple firms or structured finance deals, and therefore are not evidence that the initial ratings for subprime securities were systematically and purposefully biased.

92. Additionally, Plaintiffs fail to connect the ratings downgrades to declines in Moody's stock price. If Plaintiffs' claims were true, one would expect Moody's rating actions and announcements that allegedly revealed the fraudulently inflated ratings and resulted in "demolishing" the structured finance market to be associated with significant stock price declines. However, Plaintiffs fail to show that major downgrade announcements in 2007 and 2008 were associated with significant stock-price declines, and in my examination I have not found evidence to support the claimed connection.[132]

III.B.4. Plaintiffs fail to demonstrate that the decline in Moody's stock price over the Class Period was due to alleged misrepresentations

93. Plaintiffs claim that "[a]s Moody's misconduct and misrepresentations slowly came to light, occasioning severe regulatory scrutiny and sanctions, Moody's reputation and Moody's structured finance rating business collapsed, directly causing Moody's share price to collapse."[133] Implausibly, Plaintiffs attribute none of the decline in Moody's stock price and business performance, or the structured finance market's contraction, to the unprecedented and unexpected financial crisis.

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[131] It has been always clear that a key lesson from the NBER study applies to both corporate and structured finance ratings, namely that the credit quality of whole sectors can deteriorate so that bonds throughout that sector will experience clustered downgrades and defaults. Researchers at Moody's published a study that made this point regarding defaults very explicitly in 2001. See: Richard Cantor and Eric Falkenstein (2001), "Testing for Rating Consistency in Annual Default Rates," *The Journal of Fixed Income*, v11(2), pp. 36-51

[132] The following ratings actions and announcements, for example, were not associated with statistically significant negative stock returns: "Announcement: Moody's comments on today's rating actions on second-lien RMBS," *Moody's Investors Service*, June 15, 2007; "Moody's Downgrades Subprime First-Lien RMBS," *Moody's Investors Service Press Release*, July 10, 2007; "Moody's Puts 184 CDO Tranches on Review for Possible Downgrade," *Moody's Investors Service Press Release*, July 11, 2007; "Moody's slashes ratings on 691 securities backed by 'piggyback' loans," *Associated Press Newswires*, August 16, 2007; "Rating Action: Moody's downgrades ratings of 120 subprime RMBS tranches issued in 2005," *Moody's Investors Service*, August 22, 2007; "Rating Action: Moody's Downgrades $33.4 billion of 2006 Subprime First-Lien RMBS and Affirms $280 billion Aaa's and Aa's," *Moody's Investors Service*, October 11, 2007; "UPDATE: Moody's Downgrades Or Gives Warning On $40B In CDOs," *Dow Jones News Service*, March 27, 2008.

[133] Memorandum for Class Certification, p. 9.

94. Instead, Plaintiffs claim that "[t]his latter collapse [of Moody's stock price] was specific to Moody's, whose share price trajectory followed its own path – demarcated by company-specific corrective disclosures – rather than set by the market or industry."[134] Plaintiffs fail to acknowledge that the decline in the stock price was common to companies in the financial sector and even the whole market during the relevant period. As Exhibit 13 shows, the evolution of Moody's stock price over the proposed Class Period is similar to that of its principal peers McGraw-Hill and Fimalac, to that of a broad index of financial firms, and to that of the broader stock market as a whole. Moody's stock held up well from the beginning of the purported Class Period until July 2007.[135] From July 2007 through the last alleged disclosure day (October 22, 2008), the stock prices of the credit rating agencies, financial firms, and the broad market all suffered steep declines as a result of the financial crisis. Lost market capitalization was not unique to Moody's. Specifically, Moody's stock price dropped 64.78% from July 2, 2007 to October 22, 2008. In comparison, McGraw-Hill's stock price dropped 65.76%, Fimalac's stock price dropped 47.20%, the S&P 500 Financials index (which includes a broad list of banks, saving and loan associations, asset management firms, insurance companies, and other finance service companies) dropped 58.33%, and the NYSE index dropped 40.19% during the same time period.[136]

95. Second, Plaintiffs neglect the fact that Moody's business and stock performance was correlated with (and largely driven by) the growth of the credit markets. This was true historically and during the purported Class Period. Financial analysts view Moody's stock as "in effect, an investment in the long-term growth of the debt capital markets," and therefore "[n]ew issue dollar volume is a key driver of revenue and profitability growth for Moody's."[137] Exhibit 14 shows that Moody's financial results by segment were highly correlated with issuance activity in the credit markets. As a result,

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[134] *Ibid.*, p. 10.

[135] Moody's closing stock price was $63.89 as of February 3, 2006, and $62.04 as of July 2, 2007.

[136] All these stock returns are adjusted for splits and dividends. The difference between Moody's stock price drop and that of the S&P 500 Financials index is not statistically significant.

[137] "We have found a strong relationship between Moody's ratings revenue growth and 'adjusted' new issue dollar volume growth (correlation of 0.75)." ("Ests. Raised: Q4 Strength Broad-Based," *Citi*, January 16, 2007). Also see: "Not surprisingly, there is a fairly high correlation between rate of change in new issue bond volumes and growth in rating agency revenues ... We calculate an R-squared of about 48% between these variables." ("MCO & MHP: Measuring downside risk amid credit market turmoil," *Goldman Sachs*, August 29, 2007).

securities analysts have always paid great attention to analyzing and projecting Moody's rating revenue from issuance activities in different sectors and geographical segments.[138] For example, in the first half of 2007, analysts were aware of the recent-vintage subprime woes, but given that Moody's had only 7-8% revenue exposure to subprime related issues,[139] they were cautiously optimistic about Moody's business fundamentals.[140]

96. When the subprime problems started to deepen and spill over to the general credit markets in July and August 2007, however, Moody's earnings prospect became uncertain (see Exhibit 15). On July 2, 2007, a JP Morgan analyst stated that "we believe that recent events in the credit ecosystem have raised the risk that growth could slow more than anticipated in 2H...Whether the credit markets have reached an inflection point is an open question mark."[141] Indeed, with the liquidity crisis unfolding in the third quarter of 2007, ratings revenue growth came to an abrupt halt -- as shown by Exhibit 14 – and Moody's stock price declined.[142]

97. However, if as Plaintiffs allege, Moody's rating business declined because Moody's rating independence was compromised,[143] one would expect its business to be impacted

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[138] See, for example: "We continue to believe that MCO is a growth business due to secular growth drivers, though the exceptionally benign credit cycle has been quite extended." ("Moody's Corp.: Management Meeting Highlights," *JP Morgan*, February 28, 2007). "Moody's debt rating business is highly diversified, both from a product and geographical standpoint, and we continue to expect solid revenue and EPS growth in '07." ("Moody's Corp.: Upgrading Moody's To Buy 2 On Valuation," *UBS*, March 16, 2007).

[139] "Moody's Corp. (MCO- $68.79 – Peer Perform): Subprime Pain/Concern Hurting MCO Shares," *Bear Stearns*, February 22, 2007); "Moody's Corporation (MCO): Comments on Sub-Prime Weakness," *Citi*, February 22, 2007; "Moody's Corporation: Subprime exposures manageable, but...," *Merrill Lynch*, March 5, 2007.

[140] "Moreover, the diversity of the revenue base should mitigate the impact from a slowdown in issuance in any one asset class (such as RMBS) and/or higher interest rates." ("Moody's: Raising Estimates and Rating to Overweight," *Morgan Stanley*, June 6, 2007). "Our regression ... predicts a higher increase in revenues after the strong May. Strong growth in US Corp Fin more than offset slight US ABS decline." ("Moody's Corp (MCO): May Flowers After April Showers," *Citi*, June 18, 2007). Also see: "Moody's Corp: Highlights From Moody's Investor Day," *UBS*, June 6, 2007.

[141] "Moody's Corp: Downgrading to Neutral Due to Higher Risk Profile," *JP Morgan*, July 2, 2007. Similarly, on August 1, 2007, a Goldman Sachs analyst stated that "[w]e believe that the prospect of decelerating earnings growth and the looming uncertainty in the credit markets will pressure the shares and lead to significant near-term volatility." "Moody's Corp (MCO): Great long-term fundamentals, but too soon to own stock," *Goldman Sachs*, August 1, 2007.

[142] From February 2004 through July 2007, Moody's P/E ratio, a useful metric to assess the earnings growth potential, was generally higher than that of the Russell Growth 1000 index (of which Moody's stock was a member during the purported Class Period). Given that Moody's had been viewed by the market as a growth stock, it is not surprising that even a modest revision of its future earnings prospects could have impacted the value of the stock substantially. Richard Sloan and Douglas Skinner (2002), "Earnings Surprises, Growth Expectations, and Stock Returns or Don't Let an Earnings Torpedo Sink Your Portfolio," *Review of Accounting Studies*, Volume 7, Numbers 2-3/June, pp. 289-312.

[143] Complaint. ¶¶ 366-392.

across the board *at once*. Exhibits 16 and 17, on the other hand, show that the revenue of Moody's various segments did not move in a synchronized fashion, but in correlation with how and when each sector was impacted by the crisis. For example, while the U.S. RMBS rating revenue dropped 52% year-over-year in Q3 2007, the U.S. CMBS and ABS rating business held up relatively well or even grew over the same quarter in the prior year (Exhibit 17).[144] Interestingly, international structured finance revenues grew by 10% year-over-year, including a 32% increase from RMBS, reportedly because the European market did not include as much subprime credit or experience a housing downturn to the same extent as the U.S.[145]

98. Third, Plaintiffs' view that the revelation of Moody's alleged misrepresentations caused a "collapse" of Moody's business franchise and stock value was not shared by securities analysts. Had the decline in Moody's ratings business been primarily caused by damage to Moody's ratings integrity, such a decline would be permanent and would not rebound with economic recovery (and increasing bond issuance). Financial analysts, however, viewed lost ratings business as largely cyclical and expressed confidence in Moody's franchise value and long-term prospects even after the purported Class Period. On October 26, 2007, for instance, a Goldman Sachs analyst stated that "we believe the pressures facing these companies are cyclical in nature and don't represent a structural change in the economics of their business models."[146] In October 2008, a William Blair analyst stated that "[w]e believe that Moody's competitive stature and franchise will be relatively unchanged from what has been true over the past 108 years... As such, we believe that Moody's will be re-engaged by debt issuers of all kinds once the crisis passes."[147] Similarly, a Citi analyst stated "we expect Moody's to recover as the US economy climbs out of the recession, but more importantly, when the global financial system stabilizes. Moody's has reported strong

[144] "Q3 2007 Moody's Corporation Earnings Conference Call," *Fair Disclosure Wire*, October 24, 2007; the RMBS segment includes home equity loans and subprime securities.

[145] Another counterexample can be seen by the fact that Moody's revenue from rating financial institutions and public finance continued to grow during Q3 2007 and in subsequent quarters. See: "Q3 2007 Moody's Corporation Earnings Conference Call," *Fair Disclosure Wire*, October 24, 2007; "Q4 2007 Moody's Corporation Earnings Conference Call," *Fair Disclosure Wire*, February 7, 2008.

[146] "Revisiting the rating agencies post 3Q results," *Goldman Sachs*, October 26, 2007.

[147] "Moody's Corporation: Cutting Estimates in Light of Credit Market Shutdown, but Maintain Outperform Rating," *William Blair & Company*, October 9, 2008.

revenue and EPS growth coming out [sic] previous economic downturns, and we don't expect this episode to be different."[148]

99. In sum, Plaintiffs' theory that Moody's alleged misrepresentations caused a unique decline in its stock price beginning in the fall of 2007 cannot be reconciled with the facts (1) that the market and the industry suffered similar declines during the same period; (2) that Moody's financial performance can be largely explained by the development of the general credit markets; and (3) that financial analysts view Moody's stock price decline as mostly cyclical.

III.B.5. Plaintiffs fail to demonstrate investors suffered any loss due to alleged corrective disclosures

100. Contrary to Plaintiffs' claim, Moody's stock price movement during the purported Class Period reflected industry and market developments. In this section I will examine whether Plaintiffs have demonstrated that Moody's stock price moved in a statistically significant manner on specific days when alleged corrective disclosures occurred.

101. For an alleged disclosure to be deemed the proximate cause of an investor's loss, a financial economist would expect to observe a statistically significant negative abnormal return on that date. However, even when the negative abnormal stock return is statistically significant on a particular alleged curative disclosure day, my understanding is that the Plaintiffs have to show that the negative abnormal return was indeed caused by the revelation of previous alleged misrepresentations rather than other pertinent information in the market place. The mere fact the stock price declined is not enough to prove that an investor's loss was caused by an alleged disclosure because the observed price decline may have been driven by market or industry factors, or other non-fraud-related firm-specific factors. As discussed previously, the presence of a negative but statistically insignificant firm-specific abnormal return is not sufficient evidence of loss causation because such a return cannot be distinguished from random noise. Therefore, by failing to provide an event study or any scientific empirical

[148] "Q3 Rating Agency Preview/Sept New Issuance: Won't Try to Call the Bottom, but Govt Actions Bring Relief," *Citi*, October 15, 2008.

evidence, Plaintiffs have failed to demonstrate that Moody's shareholders suffered any losses due to alleged corrective disclosures.

102. I have examined the stock price movements, as well as the newspaper articles, analyst reports, and other public information surrounding the four corrective disclosures specifically mentioned in the Opinion and Order dismissing some of Plaintiffs' claims,[149] as well as any additional alleged disclosure days specifically referenced in Plaintiffs' Memorandum for Class Certification (see Exhibit 6).[150] Of the four alleged disclosure days specifically mentioned by the Opinion and Order, only May 21, 2008 is associated with a statistically significant negative stock price movement, while the October 12-17, 2007, April 11, 2008, and October 22, 2008 alleged disclosures are not.[151]

103. The following sub-sections individually address the few Plaintiff-alleged disclosure days (August 20, 2007, October 24-25, 2007, and May 21, 2008) with statistically significant abnormal returns, and show that there is no scientific basis to attribute the abnormal returns to Plaintiffs' allegations.

III.B.5.a. August 20, 2007

104. On August 20, 2007, Senator Richard Shelby, the ranking member of the U.S. Senate Banking, Housing, and Urban Affairs Committee, made a remark that rating agencies "have played a central role in the subprime debacle," and hence they must "shoulder some responsibility."[152] This news is cited by Plaintiffs as a corrective

[149] In Re: Moody's Corporation Securities Litigation, Opinion and Order, Filed February 23, 2009, pp. 35-37. These four disclosures include an article from *Financial Times* alleging Moody's changed its methodology to mask a rating error on May 21, 2008, Moody's CEO testifying at a Congressional hearing on October 22, 2008, an article from *The Wall Street Journal* alleging that Moody's adjusted a bond rating in a case of ratings shopping on April 11, 2008, and a report titled "October 11, 2007 Rating Actions Related to 2006 Subprime First-Lien RMBS" that was supposedly discussed in a conference call on October 12, 2007 and sent to investors on October 17, 2007.

[150] Memorandum for Class Certification, pp. 9-10.

[151] In Re: Moody's Corporation Securities Litigation, Opinion and Order, Filed February 23, 2009, pp. 35-36.

[152] Complaint ¶400; "US senator sees sub-prime crisis getting worse before better," *Agence France Presse*, August 20, 2007, 6:33 AM; "U.S. legislators will quiz rating agencies - Senator," *Reuters News*, August 20, 2007, 9:06 AM.

disclosure that "regulators were calling for investigation of Moody's structured finance ratings operations."[153] On the same day, Moody's stock price dropped 8.18%.

105. First, it was not new news that Moody's was facing Congressional scrutiny related to the subprime crisis.[154] On June 29 an article noted, Congressman Barney Frank, Chairman of the House Financial Service Committee, had announced a potential hearing on rating agencies.[155] On August 1, Senator Christopher Dodd, Chairman of the Senate Banking Committee, stated that the Senate Banking Committee would introduce legislation to address rating agencies' conflicts of interest issues, and on August 17, Dodd again "expressed 'great concern' about how credit rating agencies assessed and rated packages of mortgage related assets" during a conference call with reporters and promised to conduct a "thorough examination" of credit rating agencies.[156] Therefore, the remark made by Senator Shelby did not represent any new information on the Congressional scrutiny Moody's had been facing. In an efficient market, stock prices should react only to new material information.[157] Plaintiffs fail to show why the stock price drop on August 20, 2007 was due to the alleged corrective disclosure, which contained little, if any, new information that was supposedly negative.[158]

106. Second, not only did Senator Shelby's comment contain little new negative information, it seemed to contain some positive information. Although he had publicly

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[153] Memorandum for Class Certification, p. 10.

[154] For example, a Moody's official testified before the Subcommittee on Securities, Insurance and Investment of the Senate Banking Committee, at a hearing entitled "Subprime Mortgage Market Turmoil: Examining the Role of Securitization" on April 17, 2007. <http://banking.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=a14998f7-0b7d-4deb-8e2b-ce11fa95d79f>

[155] Congressman Barney Frank stated that lawmakers might examine the role of credit rating agencies if there were more hedge fund meltdowns due to subprime losses. "US rating agencies again seen as scapegoat," *Reuters News*, June 29, 2007, 6:25 PM. Moody's abnormal stock return is not statistically significant on June 29, 2007 nor on either surrounding trading day.

[156] "Moody's, S&P May Need Better SEC Regulation, Senator Dodd Says ," *Bloomberg*, August 1, 2007; "Hike caps on mortgage holdings, says Dodd," *Investment News*, August 17, 2007, 1:56 PM; "Dodd Reiterates Call To Increase GSEs' Portfolio Limits," *Congress Daily*, August 17, 2007, 2:17 PM; "Senator urges examination of ratings agencies," *Reuters News*, August 17, 2007, 4:48 PM. Moody's abnormal stock return is not statistically significant on August 1 or August 17, 2007.

[157] Richard A. Brealey and Stewart C. Myers (2003), "Principles of Corporate Finance," 7th Edition, *McGraw-Hill*, pp. 351-358.

[158] On that same day, "J.P. Morgan analyst downgrades McGraw-Hill to 'Neutral' on credit market turmoil," *Associated Press Newswires*, August 20, 2007, 7:13 AM. The JP Morgan downgrade of McGraw Hill was "principally due to signs that the credit markets will see a meaningful decline in issuance activity. Given the current freeze in some credit markets, we would expect MHP's shares to tread water in the near term." ("The McGraw-Hill Cos.: Downgrading to Neutral," *JP Morgan*, August 20, 2007). I show in my work with Roger Loh that an analyst recommendation change on one stock can impact other firms in the same industry (Roger K. Loh and René M. Stulz, (2010) "When are Analyst Recommendation Changes Influential?," Ohio State University Working Paper).

been a "persistent critic" of rating agencies,[159] Senator Shelby urged "legislative restraint" in his speech, and his comment was published with the headline "Lawmakers Must Not Over-Regulate Credit Agencies – US Senator" by *Dow Jones International News*. In the article, Senator Shelby was quoted as saying "[t]here will be calls for more regulation... My first thought is let's not over-regulate the market, the market will regulate itself."[160] Compared with Senator Dodd's earlier promise to introduce new legislation, Senator Shelby's comment would tend to alleviate Moody's regulatory risk to some extent.

107. Third, the intra-day price movement on August 20, 2007 is inconsistent with Plaintiffs' claim that the alleged statement caused Moody's stock price to drop (see Exhibit 18). In an efficient market, academic studies find that it usually takes minutes or several trades for stock prices to reflect new material information, especially for overnight news.[161] Although Senator Shelby's remark was made overnight, Moody's stock price opened at approximately $49.30 on August 20, compared to the closing price of $49.98 on August 17, the previous trading day, and it declined throughout the remaining trading hours. Plaintiffs fail to explain why Moody's stock price did not respond immediately to the alleged disclosure, as it should have in a supposedly efficient market had the alleged disclosure contained material information.

108. Finally, Plaintiffs simply fail to show how Senator Shelby's remark relates to Plaintiffs' allegations. In particular, he could have made the same comments in the

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[159] "Democrats Turning To Credit Rating Agencies' Role In Subprime Loan Crisis," *Congress Daily*, April 18, 2007. Also see, for example: Senator Shelby's remarks in "Dodd: Fed Failed In Supervisory Role In Subprime Loans," *Congress Daily*, March 22, 2007; "Sen Christopher J. Dodd Holds a Hearing on the Mortgage Market—Committee Hearing," *CQ Transcriptions*, March 22, 2007. For Senator Shelby's comments on rating agencies before the financial crisis, see, for example: "Examining the Role of Credit Rating Agencies in the Capital Markets," Hearing before the Committee on Banking, Housing, and Urban Affairs, February 8, 2005; "Credit ratings groups come under attack," *Financial Times*, March 8, 2006; "Moving the Market: Credit-Rating Industry May Get More Oversight --- Congress Pushes Legislation To Encourage Competition; SEC Role Comes Under Fire," *The Wall Street Journal*, March 8, 2006; "Politics & Economics: Credit-Rating Oversight Measure Is Supported by a Senate Panel," *The Wall Street Journal*, August 3, 2006.

[160] "Lawmakers Must Not Over-Regulate Credit Agencies – US Senator," *Dow Jones International News*, August 20, 2007, 11:52 AM.

[161] See: Michael Barclay and Robert Litzenberger (1988), "Announcement Effects of New Equity Issues and the Use of Intraday Price Data," *Journal of Financial Economics*, v21, pp. 71-99; Jason T. Greene and Susan G. Watts (1996), " Price Discovery on the NYSE and the NASDAQ: The Case of Overnight and Daytime News Releases," *Financial Management*, v25(1), pp. 19-42; Jeffrey A. Busse and T. Clifton Green (2002), "Market efficiency in real time," *Journal of Financial Economics*, v65, pp. 415–437; Raymond M. Brooks, Ajay Patel, and Tie Su (2003), "How the Equity Market Responds to Unanticipated Events," *Journal of Business*, v76(1), pp. 109-133.

absence of the wrongdoing alleged by Plaintiffs. Moreover, any potential regulatory scrutiny or legislative action can be costly to a company without any implication of fraud on the company's part. For example, new regulations on rating agencies could imply higher compliance costs, greater uncertainty of the competitive environment, or even required changes to the business model. The risk of these regulatory ramifications had been discussed by analysts extensively, even before the subprime crisis started.[162] I am not aware of any securities analyst who covered Moody's stock at that time commenting on Senator Shelby's remarks on August 20, 2007, let alone suggesting that it revealed any alleged wrongdoing by Moody's. Therefore, even if Moody's stock price reacted negatively to Senator Shelby's remark, Plaintiffs have not demonstrated that investors suffered losses due to revelation of any alleged prior misrepresentation by Moody's on August 20, 2007.

III.B.5.b. October 24-25, 2007

109. On October 24, 2007, Moody's announced quarterly earnings for Q3 2007 and lowered its full year 2007 guidance due to a steep decline in revenue from its structured finance line of business.[163] Plaintiffs allege that this announcement represents a disclosure by Moody's on "the collapse of its structured finance ratings business."[164] Moody's stock price dropped 3.06% on October 24, 2007, and 5.66% on October 25, 2007. The Complaint cites the earnings release and the conference call on October 24,

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[162] For example, see: "[T]here is some degree of risk, albeit small in our view, that the SEC could increase unfavorable legislation. Moody's could also face heightened competition from niche companies, particularly in international markets where local governments may provide support." ("Moody's Corp: Expect Solid 4Q06; Growth Should Decelerate in 2007," *JP Morgan*, January 22, 2007). "Although we view it as unlikely, the risk exists that a policymaking body somewhere in the world could meaningfully damage Moody's business model and/or market leadership position by legislative or regulatory action." ("4Q06 Preview--Raising Estimates Again on Strong Industry Comps," *FBR Research*, January 26, 2007). "The regulatory compliance costs may place an asymmetrical burden on smaller agencies, but is unlikely to keep potential competitors from entering the space." ("Moody's Corporation: Raised guidance largely in line with expectations," *Merrill Lynch*, June 6, 2007). "[T]he worst case scenario from a regulatory standpoint would be a recommendation to alter the current pricing structure from one in which most rating agencies get paid by the issuers they rate. This would dramatically impact the profitability of the rating agencies." ("Moody's: Sub-prime Issues Manageable; Buying Opportunity," *Morgan Stanley*, June 28, 2007). "Some investors are speculating that legislators and regulators will devise rules to reduce the market dominance of the two major credit rating agencies, as a result of the perception that the rating agencies misjudged the credit worthiness of a lot of these RMBS and CDOs.... While we see the potential for more political heat on the rating agencies, they have been in existence for a long time and survived reputation risks before." ("Moody's Corporation: Bull-bear analysis; Q2 preview," *Merrill Lynch*, July 12, 2007).

[163] "Moody's Profit Falls 13% as Credit Slump Slows Ratings Demand," *Bloomberg*, October 24, 2007, 7:09 AM; "Q3 2007 Moody's Corporation Earnings Conference Call," *Fair Disclosure Wire*, October 24, 2007, 11:30 AM; "Moody's Cut to 'Underweight' at JPMorgan," *Bloomberg*, October 25, 2007, 7:34 AM.

[164] Memorandum for Class Certification, p. 10.

2007 as the corrective disclosure.[165] If Moody's stock traded in an efficient market, as claimed by Plaintiffs,[166] the stock price should react immediately to new material information, as discussed above. The earnings release was made before the start of trading on October 24, 2007, and the conference call concluded well before the end of the trading day. Although there was ample time for the new information to be incorporated into the stock price on October 24, the abnormal return on October 24, 2007 is not statistically significant.

110. The abnormal stock return on October 25, 2007 is negative and statistically significant. However, Plaintiffs fail to show why the price movement on October 25, 2007 was in reaction to the purported disclosures on the previous day, rather than the incremental events and news that occurred afterwards.[167]

111. More importantly, Plaintiffs do not demonstrate how the reported declining revenue or forecast reductions due to the disruption in the credit markets represents a curative disclosure of the alleged misrepresentations, or even "collapse of [Moody's] structured finance rating business." As discussed in sections III.B.1. and III.B.4., there is no basis on which to assert that Moody's caused the financial crisis, or the credit market contraction that contributed to Moody's negative earnings news. I have reviewed the public press and financial analyst commentary on October 24 and 25, 2007, and none of the commentary linked the negative earnings news to Moody's alleged compromise of independence, failure to adhere to the Code of Conduct, or conflicts of interest. Instead, analysts viewed the diminishing rating revenue from several structured finance asset categories as the results of the credit crisis, and

[165] Complaint ¶377, 378, 400.

[166] Memorandum for Class Certification, pp. 18-21.

[167] JP Morgan downgraded Moody's stock and reduced 2008 EPS estimate on October 25 due to concerns over the credit market and the regulatory environment: "[w]e rate MCO Underweight as we see the shares facing continued near-term pressure owing to investor concerns about the subprime fallout and the adverse impact of less issuer friendly debt markets. Credit markets have not reached an inflection point yet in our view.... Ratings agencies are currently facing heightened scrutiny as the credit markets have deteriorated. Investor sentiment would improve should the current regulatory structure remain largely unchanged." ("Moody's Corp: Downgrading to Underweight; Lowering Ests," *JP Morgan*, October 25, 2007). Also see, "Lowering estimates to reflect run rate trends," *Merrill Lynch*, October 25, 2007. In addition, after market close on October 24, 2007: "BOE Says 'Intervention' May Be Required Over Credit Ratings," *Bloomberg*, October 24, 2007, 7:15 PM.

expressed confidence in Moody's long-run prospects.[168] Therefore, Plaintiffs have failed to demonstrate that Moody's investors suffered losses on October 24-25, 2007 due to the alleged misrepresentations.

III.B.5.c. May 21, 2008

112. On May 21, 2008, a *Financial Times* article reported that Moody's had given incorrect Aaa ratings to billions of dollars of CPDO instruments due to a glitch in Moody's computer model, and "[t]he results showed that early CPDOs might lose... up to four ratings notches." And although the senior staff reportedly knew in early 2007 about the error, rather than downgrade the instruments, they reportedly "looked at reducing assumptions about the future volatility of the credit markets" to help maintain the ratings.[169] Plaintiffs cite the article as "vivid confirmation of how Moody's had altered its rating methodologies to make high ratings appear justified,"[170] and evidence that "Moody's catered to its structured finance clients by favorably adjusting rating models."[171] The *Financial Times* article also triggered a series of events, including: Moody's launching an external investigation; Senator Schumer sending a letter to the SEC Chairman urging sanctions if Moody's is proved to have covered up the modeling error; and public statements by Connecticut Attorney General Blumenthal on an investigation of rating agencies.[172] Moody's stock price dropped 15.92% on May 21, 2008, and 6.50% on May 22, 2008.

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[168] "[W]e believe the pressures facing these companies are cyclical in nature and don't represent a structural change in the economics of their business models. Accordingly, we believe investors will be well rewarded in owning these shares when credit markets rebound." ("Revisiting the rating agencies post 3Q results," *Goldman Sachs*, October 26, 2007) "From a long-term perspective...we believe...concerns [of diminished revenues from rating structured products] run the risk of missing the bigger picture. There are ebbs and flows in issuance volumes by specific debt type and structure—always have been and always will be." ("Moody's Corporation: Lowering Estimates but See Wednesday's Price Action as Potentially Significant; Maintain Outperform Rating," *William Blair & Company*, October 24, 2007). Also see: "Moody's Corporation: Lowering estimates to reflect run rate trends," *Merrill Lynch*, October 25, 2007.

[169] Complaint, ¶363-365; "CPDOs expose ratings flaw at Moody's," *Financial Times*, May 20, 2008, 11:36 PM.

[170] Complaint, ¶400.

[171] Memorandum for Class Certification, p. 9.

[172] "UPDATE 5-Moody's launches inquiry after rating error report," *Reuters News*, May 21, 2008 3:56 AM; "MCO: Moody's: Hearing MCO downgraded to Underperform at Jefferies," *Briefing.com, Inc.*, May 21, 2008 1:57 PM; "Moody's (NYSE: MCO): Downgrading to Underperform: Report Alleges Potential Fraud in CPDO Ratings," *Jefferies*, May 21, 2008; "UPDATE: US Lawmaker Seeks SEC Probe Of Moody's Rating," *Dow Jones News Service*, May 21, 2008 5:47 PM; "Moody's Faces Connecticut Probe of Alleged 'Cover-Up' (Update1)," *Bloomberg*, May 21, 2008 7:02 PM.

113. CPDOs are highly specialized products developed in 2006 to offer investors leveraged exposure to a corporate credit portfolio.[173] Unlike other securities (e.g. RMBSs, CDOs) that are discussed previously and seem to be the focus of this case, CPDOs do not involve subprime mortgage related debt, and only account for a tiny fraction of structured finance issuance. One would expect that the fees that could be expected from such a niche product were too small to be material to Moody's. Contrast the less than $1 billion of principal reportedly affected by Moody's CPDO error with over $2.5 *trillion* of total rated structured finance issuance in 2006 alone.[174] Plaintiffs have not shown how the content of the *Financial Times* article about this niche product could serve as a "vivid confirmation" of the allegedly systematic rating problems for structured debt, let alone systematic rating biases due to potential conflicts of interest.

114. Several analysts seemed to view the stock price drop as an overreaction. The Benchmark analyst stated that "[w]hile we're not diminishing the seriousness of the allegations, we believe concerns about the implications of the computer error may be overblown.... In our view, the computer errors applied to a relatively small amount of highly specialized securities and it was not as pervasive as the *Financial Times* article implied." The William Blair analyst also commented that "[b]ased on what we know today, we view today's sell-off as an overreaction ...While negative insinuations are clearly made, we so far fail to see how today's news has any lasting significance for Moody's."[175]

115. Nonetheless, it is unsurprising that investors would react negatively to this article, as it raised some questions about the potential existence of large-scale model

[173] "Constant Proportion Debt Obligations (CPDOs) are leveraged credit investment strategies which appeared in... 2006 with the aim of generating high coupons while investing in investment grade credit. The asset side of the CPDO contains two positions: a money market account and leveraged credit exposure via index default swaps on indices of corporate names, typically the ITRAXX and DJ CDX." See: Rama Cont and Cathrine Jessen (2009), "Constant Proportion Debt Obligations (CPDO): Modeling and Risk Analysis," Columbia University Working Paper.

[174] For total structured finance issuance figures, see: "Structured Finance Rating Transitions: 1983 – 2007," *Moody's Investors Service*, February 2008, p. 4.

[175] "Moody's (MCO): Impact of Computer Error Overblown. Reiterate Buy Rating." *Benchmark*, May 22, 2008; "Moody's Corporation: We Would Be Active Buyers on Today's Press-Induced Weakness," *William Blair& Company*, May 21, 2008. Also: "Ratings Are Not a Guarantee of Value— We do not believe there is material legal liability here, unless fraud is uncovered. Interestingly, S&P had similar ratings on these securities, despite differing methodologies between the agencies." ("Moody's Corp. (MCO): CPDO Ratings Glitches Likely a Tempest in a Teapot," *Citi*, May 21, 2008).

errors.[176] The Lehman Brothers analyst stated that "[i]n our opinion, a risk on investors' minds is if there is a systematic problem at Moody's with errors being made on rating complicated debt instruments like CPDOs and the like. Is it isolated to just this one product line in Europe? Or is it more widespread at Moody's?"[177] Similarly, institutional investors such as one at Barclays Capital questioned, "[i]f it is true, does that mean other products haven't been rated correctly? ... Will they be downgraded? It could lead to turmoil."[178]

116. The *Financial Times* article also caused heightened uncertainty regarding potential regulatory and litigation consequences. For example, a Goldman Sachs analyst pointed out that "[t]he key question for investors is whether today's developments represent the 'smoking gun' that will trigger regulatory changes or litigation that could substantially alter the economic model of the ratings industry."[179] "As a growing chorus of voices calls for more government oversight of these firms,...[a] report from the *Financial Times*...has added to the skepticism about the raters and will likely fuel calls for more regulation," commented another press article.[180] Indeed, as shown in Exhibit 19, Moody's stock price substantially recovered when investors' concerns over regulatory changes were alleviated in the subsequent weeks.[181] This price recovery happened even before the result of Moody's investigation was released on July 1, 2008.

117. Contrary to what Plaintiffs allege, the external investigation found that Moody's personnel "did not make changes to the methodology for rating European CPDOs to

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[176] "Small tweaks in the model can make a huge difference in a product that's this leveraged,' said Huston Loke, the global head of structured finance at Dominion Bond Rating Service in Toronto. 'They are complex, there's a significant amount of model risk, a presumption of market liquidity and leverage.'" ("Moody's Falls Most Ever After Ratings Error Probe (Update2)," *Bloomberg*, May 21, 2008, 3:12 PM).

[177] "Moody's Corp.: Financial Times Article; Added Risk?" *Lehman Brothers*, May 21, 2008.

[178] "Moody's Falls Most Ever After Ratings Error Probe (Update2)," *Bloomberg*, May 21, 2008, 3:12 PM.

[179] "Allegations bring regulatory/legal risks to the fore," *Goldman Sachs*, May 22, 2008. See also: "Moody's Corp. (MCO): Shares respond to allegations in FT article," *Goldman Sachs*, May 21, 2008.

[180] "CHANGING RATINGS: NYU Prof Urges Hands-Off Approach To Reform," *Dow Jones Capital Markets Report*, May 22, 2008.

[181] Moody's cumulative abnormal stock return over the period from May 21 through June 5, 2008 is not statistically significant.

mask any model error."[182] The investigation found no evidence that Moody's fraudulently inflated the structured finance ratings or concealed rating errors due to conflicts of interest. A Goldman Sachs analyst commented, "[o]ur sense is that the issue uncovered in the CPDO ratings was contained; we do not believe it points to widespread failings of the ratings process or cover-ups....The swift conclusion of this investigation and the relatively benign outcome should continue to ease investor concerns over litigation and regulatory risks to the ratings agencies." Similarly, the analyst from Citi stated "No 'cover-up' or changes were made to the methodology to 'mask' any model error, and it does not appear that any laws were broken....The model error impacted only 11 CPDO's with less than $1 billion of principal."[183]

118. Therefore, Plaintiffs have not demonstrated that the stock price drop on May 21, 2008 reflected a revelation of alleged prior fraudulent misrepresentations, rather than investors' concerns about systematic model errors or regulatory risk, which could have existed regardless of any fraud.

III.B.6. Putative class members could be situated differently with respect to loss causation

119. Plaintiffs claim that loss causation is common to all class members and that lead Plaintiffs' claims are typical of other potential class members. However, in reviewing their filings it seems many alleged curative disclosures occurred well after the proposed Class Period, including April 11, 2008, May 21, 2008, and October 22, 2008. The inclusion of these dates undermines Plaintiffs' broad claims of commonality, as I will discuss below.

120. Notwithstanding my opinion that there is no scientific evidence of loss causation with respect to any alleged disclosures, to illustrate my point, assume for the sake of argument that lead Plaintiffs have a strong incentive to argue loss causation based on,

[182] "Moody's Investors Service Announces Actions After Review of European CPDO Ratings Process," *Business Wire*, July 1, 2008. Moody's stock price dropped 1.48% on July 1, 2008, but the price movement is not statistically significant.

[183] "Moody's Corp. (MCO): Swift conclusion to CPDO investigation," *Goldman Sachs*, July 1, 2008; "Moody's Corp (MCO): CPDO Review Completed – Headline Risk is Subsiding," *Citi*, July 1, 2008.

for example, the alleged April 11, 2008 disclosure. The aggressive pursuit of claims relating to April 11, 2008 would not benefit class members who had already sold all their Moody's stock before April 11, and thus suffered no economic damage resulting from that alleged disclosure. Since class members who sold all their Moody's shares prior to the alleged 2008 disclosures have no economic claim to damages based on those disclosures, obviously they have a strong incentive to forsake such claims (and avoid expending extra resources) and instead aggressively pursue claims related to earlier alleged disclosure dates.

121. To put some concrete numbers behind this hypothetical situation, Exhibit 20 presents a table of quarterly institutional holdings after June 30, 2007. The exhibit demonstrates that there were indeed potential class members who were large holders of Moody's stock -- such as Marsico Capital Management and Atticus Capital -- and have no claim to alleged economic damages based on purported disclosures after March 31, 2008 as they had already liquidated their positions in Moody's stock by that date.

122. Indeed, it also appears that Charles McCurley Jr. and Local 282 Pension Trust Fund, two of the three lead Plaintiffs, sold all their Moody's stock by early September 2007 and therefore would have suffered no economic loss from subsequent purported disclosures.[184] Interestingly, another lead Plaintiff, Lewis Wetstein, held Moody's shares until August 2008.[185] So even within the lead Plaintiff group there are stark differences in incentive to pursue claims based on different alleged disclosures. Therefore, Plaintiffs fail to demonstrate that the economic issues related to loss causation are common to all class members and that lead Plaintiffs' claims are typical of other potential class members.

[184] See: MCCURLEY 0001-0007; LTPF 0002852.

[185] See: Wetstein 0001-0003.

Professor René M. Stulz

May 28, 2010
Date

Appendix A

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UNDERGRADUATE STUDIES

University of Neuchâtel, Switzerland, Licence es Sciences Économiques, 1975.

GRADUATE STUDIES

London School of Economics, 1975-1976, Visiting Graduate Student.

Massachusetts Institute of Technology (MIT), 1976-1980, Ph.D. in Economics.

ACADEMIC APPOINTMENTS

Ohio State University; Everett D. Reese Chair of Banking and Monetary Economics, 1996 to present.

University of Southern California, Visiting Professor, 2007.

University of Chicago, Visiting Professor, Stigler Center, 2003-2004.

Northwestern University, Visiting Scholar, Kellogg School of Management, 2003-2004.

Harvard University; Business School, August 1996 to July1997, Bower Fellow.

Ohio State University; Director of the Dice Center for Research in Financial Economics, 1995 to present.

Ohio State University; Ralph Kurtz Chair in Finance, 1993-1996.

Ohio State University; Riklis Chair in Business and its Environments, 1988-1993.

Ohio State University; Professor of Finance, 1985 to present.

University of Chicago; Visiting Professor of Finance, 1986-1987.

Massachusetts Institute of Technology; Visiting Associate Professor of Finance, Fall 1985.

Ohio State University; Associate Professor of Finance, 1983-1985.

University of Rochester; Assistant Professor of Finance and Economics, 1980-1983.

OTHER RELEVANT POSITIONS HELD

Research Associate, National Bureau of Economic Research (Asset Pricing Group and Corporate Finance Group).

Director, NBER Project on the Risks of Financial Institutions.

Chairman, Scientific Council, Swiss Finance Institute, 2006 to present.

Board of Directors, American Finance Association, 1988 to 2000, 2002 to 2006.

Consultant to the World Bank, the IMF, the NYSE, Federal Reserve Bank of New York, corporations, and law firms.

Taught executives in Europe, Asia and North America (open enrollment as well as for firms; courses on risk management, banking, derivatives, corporate valuation, investments).

Advisory Committee, Morningstar, 2000-2002.

Director, Banque Bonhôte, 2002 to present.

Director, Weggelin Fund Management, 1999 to present.

President, Gamma Foundation, 2002 to present.

Director, Community First Financial Group, Inc., 2001 to present.

Director, Peninsula Banking Group, Inc., 2001 to present.

Trustee, Global Association of Risk Professionals, 2002 to present; Executive Committee, 2004 to present.

Chairman, Financial Risk Management Examination Certification Committee, Global Association of Risk Professionals, 2002 to present.

International Advisory Committee, NCCR, 2002 to present.

External Reviewer, London Business School Finance Department, 2005.

Financial Advisory Roundtable (FAR), Federal Reserve Bank of New York, 2006 to 2010.

Appendix A

Guest Contributor, Harvard Law School Corporate Governance Blog.

Squam Lake Group, member, 2008 to present.

HONORS, SCHOLARSHIPS, AND FELLOWSHIPS

Advanced Researcher Fellowship, Swiss National Science Foundation, 1978-1980.

Dean's Research Professorship, Ohio State University, Spring 1984.

Pacesetter Research Award, Ohio State University, April 1986.

President-Elect (1993) and President (1994), International Economics and Finance Society.

Docteur Honoris Causa, University of Neuchâtel, Switzerland, 1998.

Eastern Finance Association Scholar Award, 1998.

Selected keynote speeches: Asia-Pacific Finance Association, Bocconi Derivatives Annual Conference, Drexel Corporate Governance Conference, Eastern Finance Association, European Corporate Finance Institute, European Finance Association, European Financial Management Association, FDIC Annual Conference, Financial Management Association, Fourth Annual Conference on Asia-Pacific Financial Markets of the Korean Securities Association, French Finance Association, German Finance Association, Notre Dame/SEC Conference, Northern Finance Association, Western Finance Association.

Assurant Lecture, Georgia Tech University, 2004.

Fellow, Financial Management Association, 2000.

Fellow, American Finance Association, 2005.

Fellow, European Corporate Governance Institute, 2005.

Vice-President (2002), Program Chair, (2003), President (2004), Western Finance Association.

Vice-President (2002), President-elect (2003), President (2004), American Finance Association.

Who's Who in Banking and Finance; Who's Who in Economics.

Jensen Prize for best article in Corporate Finance in the Journal of Financial Economics, 2000, 2008.

William F. Sharpe Award for the best paper published in the Journal of Financial and Quantitative Analysis during the year 2003.

Appendix A

Selected by the magazine Treasury and Risk Management as one of the 100 most influential people in finance (June 2004).

René M. Stulz Scholar Development Fund, created in 2005 by former Ph.D. students.

Fama/DFA Prize for best article in Capital Markets and Asset Pricing in the Journal of Financial Economics, 2005.

Nominated for a Brattle Prize for best paper in Corporate Finance in the Journal of Finance in 2005.

Risk Who's Who, Charter Member, 2006.

Best paper, First Asian-Pacific Capital Markets Conference, Seoul, 2006.

Outstanding Academic Contribution to Corporate Governance Award, Drexel University, 2009.

Risk manager of the year award, Global Association of Risk Professionals, 2009.

BOOKS

Risk Management and Derivatives, Southwestern College Publishing, 2003.

Handbook of the Economics of Finance, 2 volumes, edited with George Constantinides and Milton Harris, North-Holland, 2003.

International Capital Markets, 3 volumes, edited with Andrew Karolyi, Edward Elgar, 2003.

Readings for the Financial Risk Manager, edited with Richard Apostolik, Wiley, 2004.

Readings for the Financial Risk Manager, edited with Richard Apostolik, Wiley, 2005.

The Risks of Financial Institutions, edited with Mark Carey, University of Chicago Press, 2006.

The Squam Lake Report: Fixing the Financial System, co-authored with the Squam Lake Group, Princeton University Press, 2010.

Appendix A

PUBLISHED PAPERS

"On the Effects of Barriers to International Investment," Journal of Finance, 1981, v36(4), 923-934, reprinted in Emerging Markets, Bekaert and Harvey, ed., Edward Elgar Publishing, 2004, 1-36.

"A Model of International Asset Pricing," Journal of Financial Economics, 1981, v9(4), 383-406.

"The Forward Exchange Rate and Macroeconomics," Journal of International Economics, 1982, v12(3/4), 285-299.

"Options on the Minimum or the Maximum of Two Risky Assets: Analysis and Applications," Journal of Financial Economics, 1982, v10(2), 161-185, reprinted in Options Markets, vol. 2, George Constantinides and A. G. Malliaris, eds., Edward Elgar Publishing, 2001.

"On the Determinants of Net Foreign Investment," Journal of Finance, 1983, v38(2), 459-468.

"The Demand for Foreign Bonds," Journal of International Economics, 1983, v15(3/4), 225-238.

"Optimal Hedging Policies," Journal of Financial and Quantitative Analysis, 1984, v19(2), 127-140.

"Currency Preferences, Purchasing Power Risks and the Determination of Exchange Rates in an Optimizing Model," Journal of Money, Credit and Banking, 1984, v16(3), 302-316; reprinted in Monetary Policy and Uncertainty, Manfred J. M. Neumann, ed., Nomos, 1986.

"Pricing Capital Assets in an International Setting: An Introduction," Journal of International Business Studies (Winter 1984), 55_73; reprinted in International Financial Management: Theory and Applications, Donald R. Lessard, ed., John Wiley & Sons, 1985.

"Macroeconomic Time-Series, Business Cycles and Macroeconomic Policies," with Walter Wasserfallen, Carnegie-Rochester Conference Series on Public Policy (Spring 1985), 9-55.

"An Analysis of Secured Debt," with Herb Johnson, Journal of Financial Economics, 1985, v14(4), 501-522, reprinted in The Debt Market, vol. 3, Steve A. Ross, editor, Edward Elgar, 2000.

"The Determinants of Firm's Hedging Policies," with Clifford W. Smith, Journal of Financial and Quantitative Analysis, 1985, v20(4), 391-406; reprinted in Studies in Financial Institutions: Commercial Banks, C. James and C.W. Smith, eds., McGraw-Hill, 1993, and in Corporate Hedging in Theory and Practice: Lessons from Metallgesellschaft, Christopher L. Culp and Merton H. Miller, eds, Risk Publications, London, 1999.

Appendix A

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"Risk Bearing, Labor Contracts and Capital Markets," with Patricia B. Reagan, Research in Finance, 1986, v6, 217-232.

"Interest Rates and Monetary Policy Uncertainty," Journal of Monetary Economics, 1986, v17(3), 331-348.

"Time-Varying Risk Premia, Imperfect Information and the Forward Exchange Rate," International Journal of Forecasting, 1987, v3(1), 171-178.

"The Pricing of Options with Default Risk," with Herb Johnson, Journal of Finance, 1987, v42(2), 267-280.

"An Equilibrium Model of Exchange Rate Determination and Asset Pricing with Non-Traded Goods and Imperfect Information," Journal of Political Economy, 1987, v95(5), 1024-1040.

"Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control", Journal of Financial Economics, 1988, v20(1/2), 25_54, reprinted in M.C. Jensen and C.W. Smith, eds., The Modern Theory of Corporate Finance, McGraw-Hill, 1989 (second edition).

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"The Eurobond Market and Corporate Financial Policy: A Test of the Clientele Hypothesis," with Yong Cheol Kim, Journal of Financial Economics, 1988, v22(2), 189-205.

"Contracts, Delivery Lags, and Currency Risks," with Patricia Reagan, Journal of International Money and Finance, 1989, v8(1), 89-104.

"The Pricing of Stock Index Options in General Equilibrium," with Warren Bailey, Journal of Financial and Quantitative Analysis, 1989, v24(1), 1-12.

"Managerial Performance, Tobin's q, and the Gains from Successful Tender Offers," with Larry Lang and Ralph Walkling, Journal of Financial Economics, 1989, v24(1), 137-154.

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Appendix A

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"A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns," with Ralph A. Walkling and Larry H. Lang, Journal of Financial Economics, 1991, v29(2), 315-335.

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